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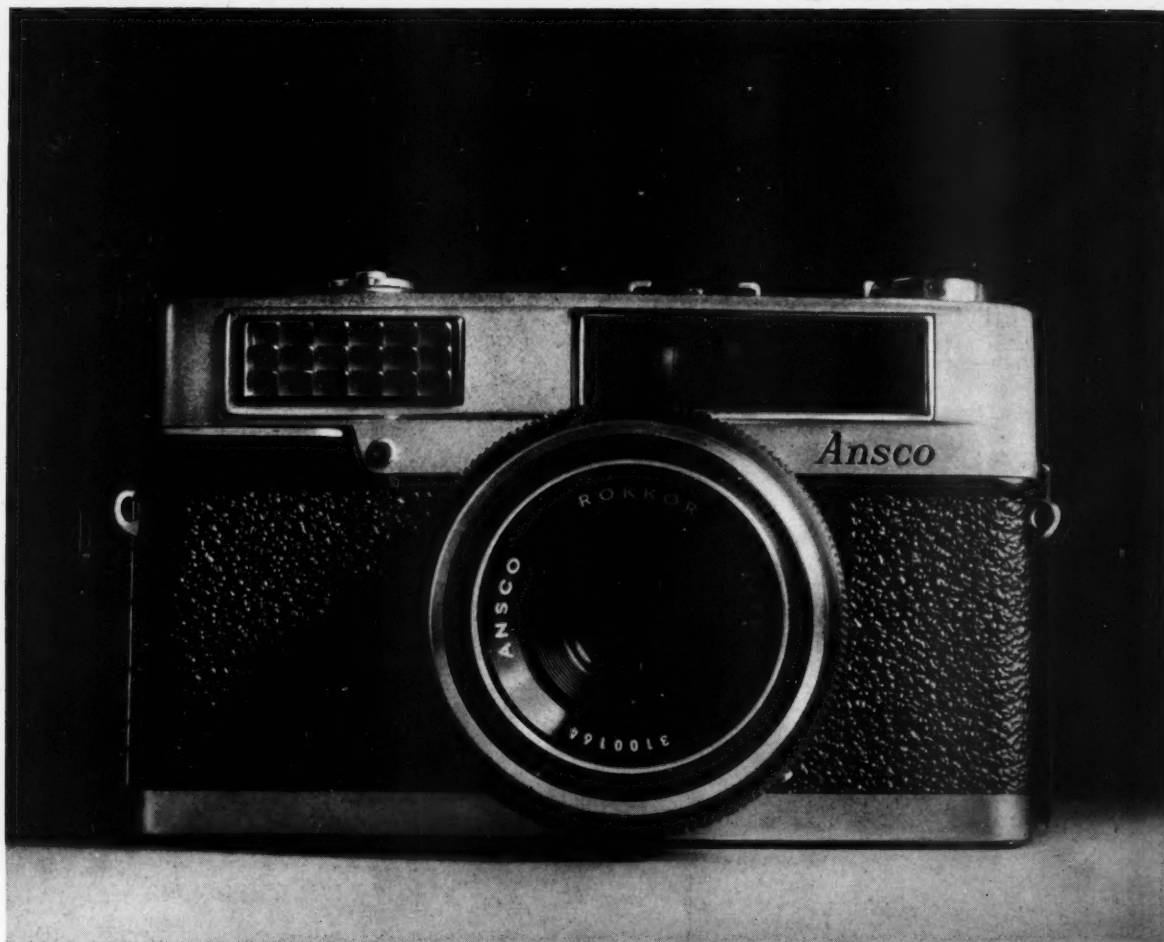


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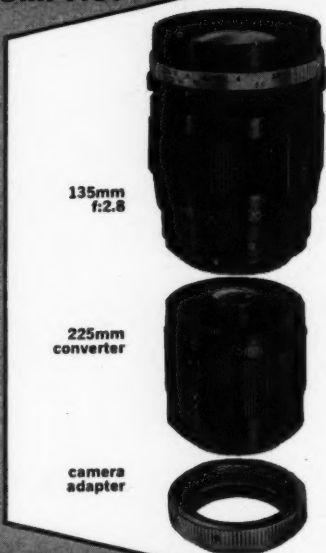
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# modern PHOTOGRAPHY

APRIL 1961, VOL. 25, NO. 4

EVERETT GELLERT, Publisher

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THE work you can do with it, nothing else.

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The interchangeability of lenses, film backs and accessories—over 100 camera set-ups in all—that enables a professional to carry a Hasselblad instead of half his studio on location assignments.

The automatic aids that let the pro concentrate on his subject instead of the camera, and help the amateur make up in part for the intimate knowledge of light and optics that marks professional work.

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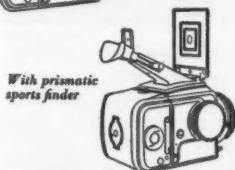
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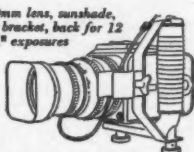
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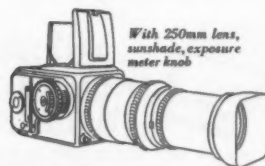
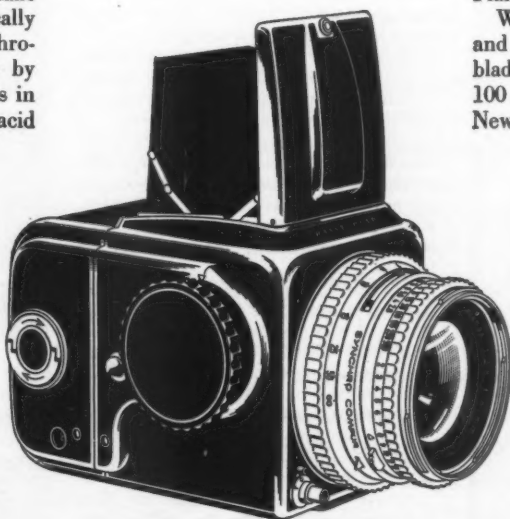
With magnifying hood, 60mm lens, back for 16  $1\frac{1}{4} \times 2\frac{1}{4}$  exposures, exposure meter knob



With prism sports finder



With 150mm lens, sunshade, flash gun bracket, back for 12  $2\frac{1}{4} \times 2\frac{1}{4}$  exposures



With 250mm lens, sunshade, exposure meter knob



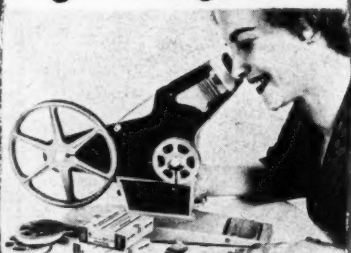
With magnifying hood, cut film adaptor and holder



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## Coffee Break WITH THE EDITORS

### THIS MONTH'S COVER . . .

In the strip of 120 film across the top you see, first, part of the bird-on-sun picture that's shown in full on page 55; it's one of four by Leonard Balish illustrating a fresh approach to 2 1/4 color. Next, our artist's impression of the skeleton of a 2 1/4 single-lens reflex, a breed of camera that's anatomized on page 50. Finally, a cropped child photographed by Steven C. Wilson with a Rolleiflex, to introduce some advice on composing and cropping your 2 1/4 negs, page 60.

The somewhat crumpled strip of movie film is self-explanatory, except for the shots of the water wheel. These are frame enlargements from Ernst Wildi's prize-winning movie *Water's Edge*, which is analyzed on page 76. Oh yes, in case you're trying to read the title set up in the first frame, it says "Mountain Trails." Mike Matzkin, whose title it is, hasn't even planned the movie yet, let alone shot it—but he believes in beginning strictly at the beginning.

### JUST ANOTHER AMATEUR . . .

Mrs. Tomi Keitlin is one of those typical amateur photographers who lug around a still and movie camera in their travels throughout Europe and the United States. She has no trouble at all in producing on request several hundred still and black-and-white photographs that show all the places she's been. Enough of the pictures are well composed to show that her sense of photographic balance is no accident. In addition they show a well developed feeling for form and shape. Many of her pictures appear in her recently published book *Farewell To Fear* (with Norman M. Lobsenz, published by Bernard Geis Associates). But Mrs. Keitlin has never seen any of her still photographs or movies: she is totally blind.

We spent a good part of an afternoon over lunch and in her office at the Physical Fitness Institute, finding out how Mrs. Keitlin takes pictures and also pursues a number of other hobbies (she climbs mountains, plays golf, skis, and has even started skin diving).

Some pictures she took in Venice are good examples of the technique used by Mrs. Keitlin.

"First, I spent a number of days getting familiar with the feel of the city. People described various points of interest and I just soaked in sounds and smells.

"When I wanted to take a specific photo, someone would stand at the extremes of the subject and shout back

at me. This helps me get the direction and general size of things. Some other photos made from a gondola required only centering the front of the gondola and knowing what was in the background. Since I use Bell & Howell electric eye 16mm movie and 127 still cameras, exposure usually isn't much of a problem. However, I do like shadows in my photographs and I can generally tell the direction of the sun from the way it feels on my face.

"Landscapes are even easier for me. If I keep the camera fairly level with



A photographer who cannot see . . .



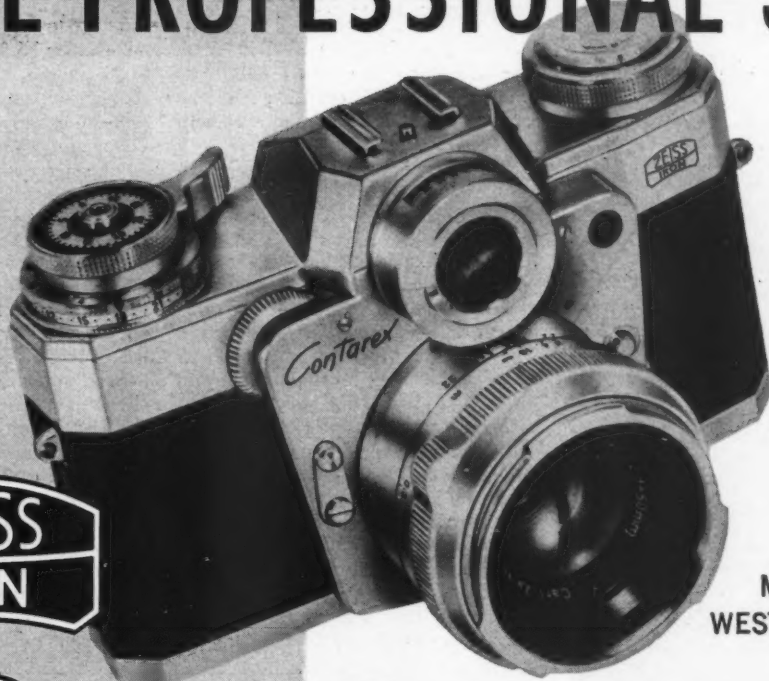
TOMI KEITLIN

. . . the places she photographs.

my eye and am sufficiently far from a mountain, for example, I usually manage quite well. Panning helps, of course, when I shoot movies. Last summer we were taking a boat through the Norwegian fjords when someone remarked about a waterfall cascading down a mountain. I asked him where it was, swung my movie camera and shot. The scene is one of the best of those I made on the trip. I've had my

(Continued on page 8)

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## High Speed Ektachrome in 120? Sure, but it's called S0125

When 35mm High Speed Ektachrome was placed on the market, all of us wondered when this emulsion would be available in 120 roll film size to help out the larger camera owners.

The silence from Eastman Kodak on the progress (if any) of 120 High Speed Ektachrome was constant. We entered a camera store a few weeks ago, passed the film counter and were stopped by a salesman, "Hey, want some really hot film?" he whispered under his breath in best prohibition-days style. The "hot film" turned out to be High Speed Ektachrome, both Daylight and Type B, in 120 roll film size.

We rushed a query to Kodak and the fathers of High Speed Ektachrome made the facts known to us somewhat reluctantly. The reluctance, however, was understandable as the story unfolded. Limited quantities of 120-size roll Kodak Color Reversal Film, Daylight Type S0125 and Type B S0126 with an E.I. of 160 and 125 respectively, are available on a special order basis. A mini-

mum order of 20 rolls is required. At \$1.75 per roll, it's the type of purchase that anyone save a prolific amateur or professional might think twice about.

One of the problems at present has to do with processing. The film must be given exceptionally intense re-exposure. This requires either removing the film from the processing reel completely and then replacing it after re-exposure, or the use of a special high intensity light with two RFL2 lamps and heat-absorbing glass.

Few labs at this writing are prepared to handle even a limited number of rolls. However, it's quite obvious that it won't be long before film production and processors' knowhow both increase and the film will become available normally.

"Available on special order" seems to be a very intelligent marketing procedure by which Kodak enables professionals to use products which, if they had to be released to the general market, might be held up for a much longer time.—H.K.

### COFFEE BREAK

(Continued from page 6)

share of misses of course—but doesn't everyone?"

Mrs. Keitlin has been blind for only about five years and her memory of the way things are helps, she admits.

But why does she take pictures she can't see? "First, I like to show people where I've been. I'm not one of those amateurs who drag out a slide or movie projector at the least provocation. But if people want to see my pictures, I enjoy their looking at them.

"Important, too, I have a growing daughter who travels with me quite a bit. Someday she'll want a record of the things we saw. Right now, her interest in photography is just beginning. It's a bit late for the places we've already been to."

### SITTING PRETTY • • •

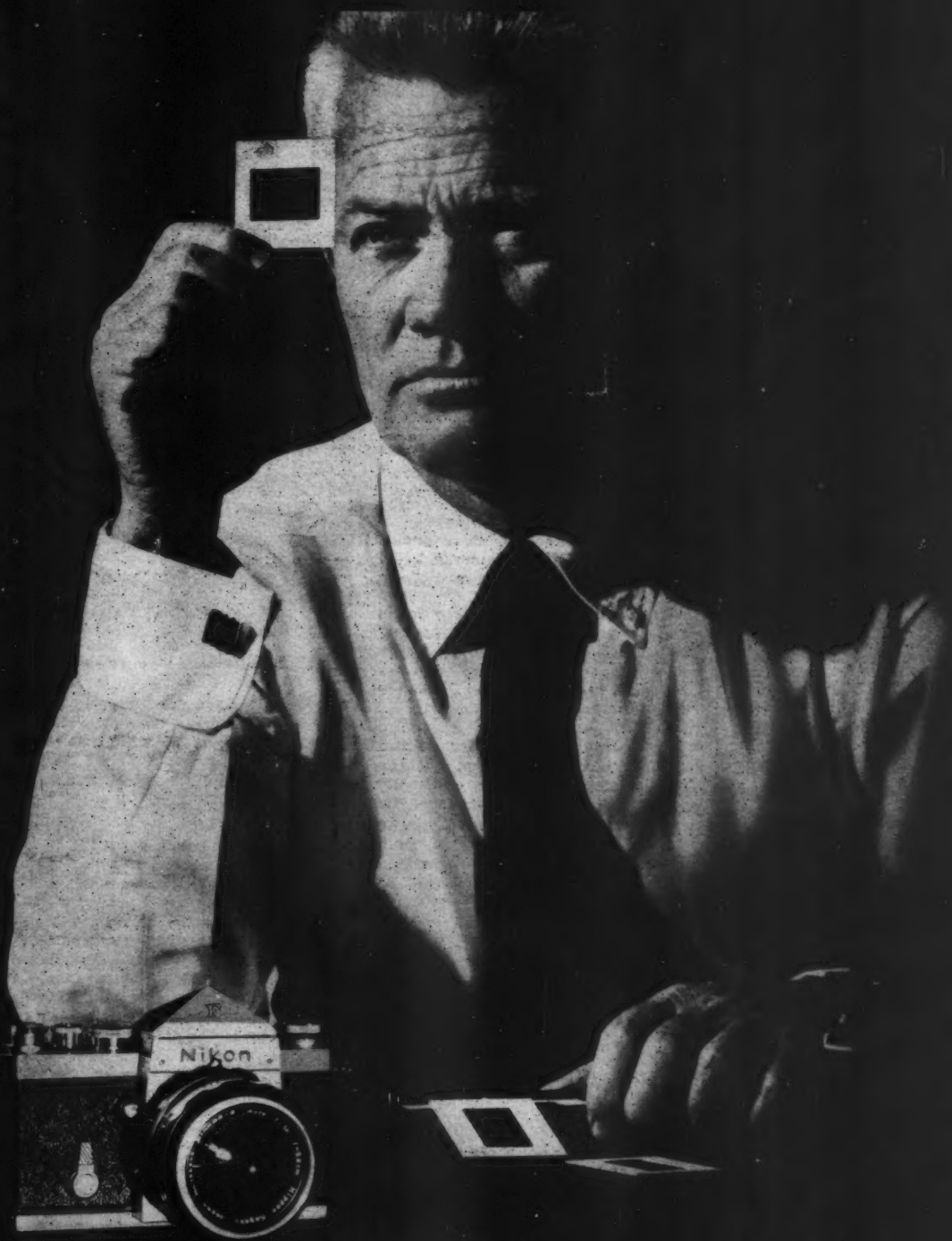
Who do you think was the most photographed woman of 1960? Jackie Kennedy? Try again. Queen Elizabeth, or her sister Margaret? No. Brigitte Bardot? You'd better give up. Who then? Karin Levin. Karin Levin? That's right: you may remember she was Miss New York State in 1955, and then runner-up for Miss World and Miss Universe. Can't say I do remember, but anyway, how come she was photographed more times than the top celebrities? Quite simple—she models for Eastman Kodak's film testing studio in Rochester. I thought it was a

catch question—why, they could have picked anyone! Oh no, they had to have someone with near-perfect features and beautiful coloring. Uh-huh, and how many times was she photographed, anyway? Oh, 80,000 still pictures (give or take a couple of thousand) and 250,000 ft. of movie film




One out of 80,000.

(give or take a couple of thousand feet). Say, is that her picture above? Yes it is. (Whistle. Sound of footsteps.) Hey, where are you going? Rochester. Wait a minute, she's married! Okay, I only wanted to take my camera and bring the total up to 80,010 or so. Still no go—her husband photographs her weekends!—THE END



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# LETTERS TO THE EDITOR

## Indoor Sportsmen

Shooting pictures of a TV screen is an interesting indoor sport as your article (November 1960) stated. However, shooting 8mm Tri-X movies of a TV screen is even more fascinating since it is possible to make up a reel containing highlights of everything from the Olympics to the Miss America contest.

Either f/4 or f/5.6 will give fair movies, depending on what exposure works best according to your screen brightness. Many times the movies will have a zoom effect which is second nature with television cameras.

Campbell, Ohio

Edward Verba

*Because camera and TV are not in sync, a descending horizontal line will probably appear on movie film. Kinescope cameras filming live TV shows are locked in sync with the TV image rate (30 impulses per sec.).—ED.*

I am a high school student with a minimum of equipment, but I believe I have attained success with my method of shooting from the TV screen. I use a twin-lens reflex camera on a tripod, approximately 3 ft. from the screen. The camera is set for 1/30 at f/3.5. I use a cable release but no close-up lenses. The film is Verichrome Pan, developed in Ethol UFG.

Brooklyn, N. Y.

Jerry Wachtel

It might interest you to know that after Mr. Eisenhower had finished his inaugural address (Jan. 21, 1957), they ran a scene off video tape, and my shot of the President from the video tape is clearer than those I made from the live shots.

Dayton, Ohio

Frank M. Betz

... I take all my shots very close with Zeiss Contarex, 50mm f/2, Planar lens, which focuses down to 12 in., at around 12 to 20 in. at f/2.8 and f/4 at 1/30, using Agfa IR at E.I. 800.

Chicago, Ill.

Clarence Miller

## Another Monocular

We read the article (March 1960) on using monoculars for telephoto lenses, and were surprised that Edmund Scientific was not included as a source for budget-minded individuals. Enclosed is a picture of one of their \$15 units which I mounted very simply with a small piece of wood, a piece of strap iron, a short length of 1/8-in. pipe threaded into the eyepiece end for a hinge pin, and three thumbscrews. The eyepiece cup was filed down until

it would enter the shade of the camera lens, as shown. Pictures taken with this combination are sharp at the center, fall off considerably at the corners. The camera lens must not be stopped down, or vignetting will occur.



W. H. SPARING

350mm for a do-it-yourselfer.

This 7 x 50 monocular seems to produce very nearly the theoretical 350mm length at f/7 with a 50mm camera lens.

Park Forest, Ill.

W. H. Sparing

## Whole vs. Its Parts

In the October 1960 issue ("Too Hot to Handle"), a question was asked concerning the comparison of results of the Pro-Tessar lens components for the Contaflex, against the 35mm f/4 Distagon for the Contarex. We appreciate the generally fair answer you gave. Although the question as put in your column was rather specific, there may be other factors worth mentioning.

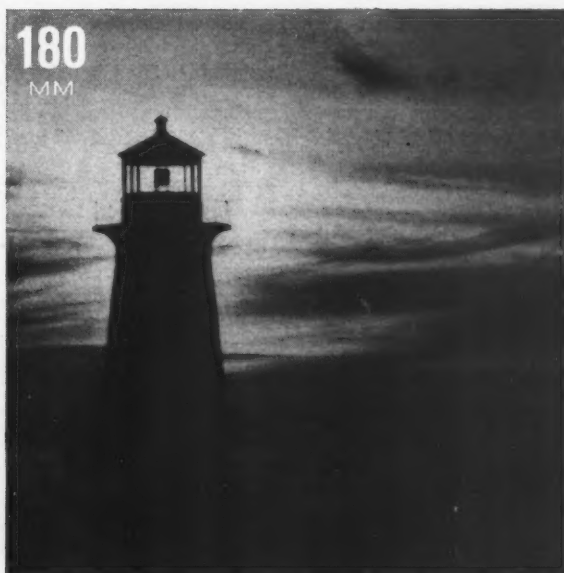
Actually, the set of objectives provides three different focal lengths and hence is really in the form of a convertible lens system. This is pointed out to differentiate between supplementary attachments that neither give as much change in focal length nor provide the more desirable wider aperture and overall quality.

With respect to the quality comparison between these two for general use, it would be doubtful if even an expert could distinguish a picture made with one or the other lens, since the quality of the image of either is better than the resolution of the film or print. Therefore, for all practical purposes, the results should be equally satisfactory.

New York, N.Y.

John V. Adams  
Carl Zeiss, Inc.

*Although we could tell the difference between this convertible lens system and supplementary lenses, we still feel the completely interchangeable lenses are better.—ED.*



C2 PHOTOGRAPH BY VICTOR KEPPLER

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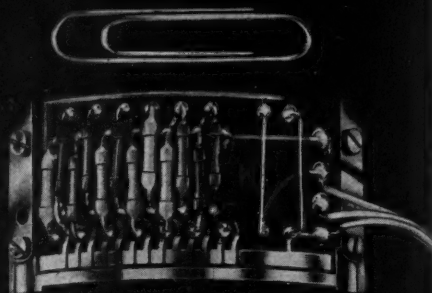
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# New Photo Books

**TAKING PICTURES AFTER DARK**, by Y. Ernest Satow, 119 pages, profusely illustrated. Amphoto: Edition Bound, \$2.50\*

Excellent illustrations and down-to-earth information on indoor and outdoor shooting after the sun has set. The material on film exposure and development is particularly valuable. Highly recommended for anyone interested in expanding the scope of his picture taking to include available light and night photography.—P.C.

**OUTER SPACE PHOTOGRAPHY FOR THE AMATEUR**, by Henry E. Paul, 128 pages, profusely illustrated. Amphoto, \$2.50\*

At last!! A book about photographing the stars and astronomical subjects for amateurs without showing any photographs taken with the giant telescopes of the professional astronomers. In an all too brief 128 pages Dr. Paul ranges over the techniques and problems of photographing stars, planets, comets, meteors, the Sun, high-flying objects, the eclipses, and a variety of other subjects. He devotes many pages to the selection and use of moderately priced camera lenses and astronomical mountings. The many excellent photographs (more than 130) Dr. Paul has selected are all "amateur" made. Thus, Dr. Paul has raised his voice in enthusiasm and encouragement to the amateur astronomers and photographers who want to try this fascinating work but hardly know where to start.

He strives earnestly "to encourage the amateur—in the use of readily available photographic equipment and telescopes." In support of this he shows amateur photographs taken with such lenses as the famous 7½-in. f/2.5 war-surplus Aero-Ektar; the 180mm f/2.8 Zeiss Sonnar; and a series of "spotting" telescopes attached to typical miniature cameras.

This little volume is a goldmine of encouragement to the amateur astronomer, but, I'm afraid, may awe the photography fan somewhat. The book makes a strong case for acquiring and working with some type of equatorially mounted telescope. To counteract this, Dr. Paul might have shown a few more photographs taken with more commonplace cameras.

This reviewer finds the book excellent, with good illustration quality and clear printing on high quality paper. A few minor typographical errors do not

detract from the excellence. On page 5 under Figure 7, E. C. Silva's large telescope is given as "2 inch aperture," whereas it is 20 inches aperture, large by any amateur standards.

The book is definitely recommended for the photography fan who wishes to invade a new and interesting area of picture-taking.—B.S.

**OFFICIAL NIKON F REFLEX MANUAL**, by Amphoto Editorial Board. 126 pages, illustrated. Amphoto: Edition Bound, \$2.50\*

All about the Nikon F, its lenses and accessories as well as how to use them in almost any possible picture taking situation. Complete, detailed depth-of-field tables for every lens; diagrams and charts on subjects ranging from the filters to use with black-and-white and color films to calculating your own guide numbers for electronic flash. Complete chapters cover exposure, color, picture taking techniques and lighting. A must for every Nikon F owner.—P.C.

**CAMERA AFLOAT**, by H. S. Newcombe, 160 pages, 43 photographs. Focal Press/Amphoto, \$5.95\*

H. S. Newcombe is an extremely successful writer about photography (which is also his hobby) and an enthusiastic sailor. In this "Guide For Those Who Go Sailing With Cameras" he tells how to combine the two.

It is full of the most useful information, and anyone who takes the trouble to read this book with any attention can hardly avoid learning how to make good pictures afloat.

Not the least important parts are two glossaries of sailing terms (for those who don't know a bobstay from a transom) and photographic words from acceptance angle to wide-angle lens. There are only a few expressions so English that Americans will get lost.

The well reproduced pictures, while hardly sensational, are on the whole well chosen to illustrate the various points that the author makes. However, the warm, sunny look characteristic of many American sailing scenes is missing.

There is a worthwhile (unillustrated) chapter on picture taking aboard ocean liners, in which he describes how to overcome the problems caused by brilliant overhead tropical light.

Mr. Newcombe's technical background is such that his recommendations can be followed with confidence.

(Continued on page 20)

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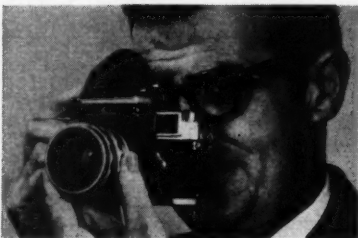
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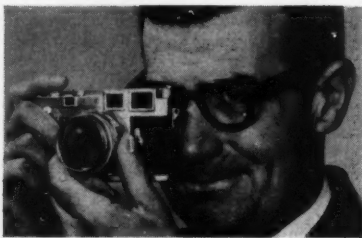
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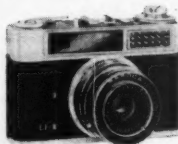
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Automatic as well as optional manual exposure control is possible with the Super Baldamatic I 35mm rangefinder camera. The 45mm f/2.8 Color-Baldanar lens is

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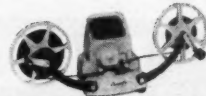


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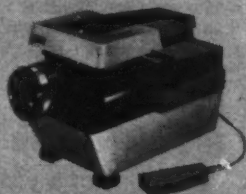
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TRADE-INS ACCEPTED I

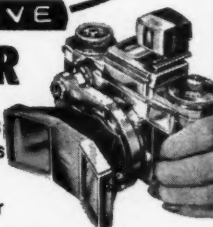
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- Prism attachment
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- Coupled to Rangefinder



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## SAVE ZEISS TESSAR SUPER DOLLINA

35mm Camera

- Coupled Rangefinder
- Flash Synchronized
- Autom. Filmtransport
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**BRAND NEW 27<sup>50</sup>** Case 3.95



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**BRAND NEW**

**148<sup>50</sup>**

- 135mm XENAR f4.7 lens
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- Kalart coupled R. F.
- Grafflock back
- Discontinued

4 x 5 SUPER GRAPHIC

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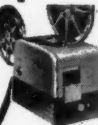


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**129<sup>50</sup>**

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- Coupled Rangefinder
- Variable focus viewfinder
- Single dial shutter, 1/1000
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**138<sup>00</sup>**  
Demo. model

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WIDE ANGLE LENS SET  
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- Also for other Stereo cameras.
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**8mm MOVIE**

## LENSES FOR 8mm MOVIES

## 16mm MOVIE

## LENSES FOR 16mm MOVIES

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1" B&L F:2.7 lens	NEW	4.50
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63mm Kodak F:2.7 telephoto	used	10.50
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E. Golden Crown, Exp. Meter, latest.....	used	15
Wind for Leica, Contaflex.....	NEW	1

Montax, etc.	used	24
Reception bellows for Reolux	NEW	13
Adak Stereo, F:3.5, synch.	NEW 25.00	used 28
Reolux Realist, F:3.5, Rfdr.	used	14
Reolux Stereo, F:3.5, Rfdr.	used	39
Sollensnak Stereo, F:2.7, Rfdr. synch.	NEW	69
Reoluxmaster Stereo camera	used	39
Reolux Stereo projector, 500W, blower	used	99

# OK! Good!

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28mm Summaron F:5.6 W.A.	used	82.00
28mm Nikkor F:3.5 W.A.	NEW	74.75
35mm Summaron F:2.8	used	38.00
35mm Summaron F:3.5 W.A. bayonet	used	38.00
50mm Summaron F:2 Rfdr. for M3	used	145.00
50mm Summaron F:2.8	used	48.00
50mm Summarit F:1.5 screw or bayonet	used	48.00
50mm Summilux F:1.4	used	118.00
50mm Serenar F:1.4	used	118.00
50mm Steinheil F:2.8, coupled to Rfdr.	used	24.95
50mm Steinheil F:2.8, coupled to Rfdr.	used	24.95
50mm Summaron F:2.8	used	118.00
55mm Summaron F:1.4	used	118.00
50mm Summaron F:2.8 screw or bay.	used	128.95
60mm Elmarit F:2.8 screw or bay.	used	89.50
60mm Elmar F:2.8 rigid, screw or bay.	used	43.50
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105mm Elmar F:2.8, screw or bay.	used	89.50
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Telephoto Tely: F4.5, for Visaflex I or II	used	87.50
400mm Telephoto Tely: F4.5, for I or II	used	200.00
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Leitz lens caps	used	3.50
35-90-90-135 Ilamorous finder, each	NEW	4.95

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30mm	Auto-Angulon F:4.5 W.A.	used \$88.00
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35mm	Auto-Quinaron F:2.8 W.A.	used \$44.50
35mm	Auto-Quinaron F:4.5 W.A.	used \$44.50
50mm	Auto-Westarpan F:2.8 for Ex.	new \$32.50
50mm	Auto-Westarpan F:2.8 for Ex.	used \$24.50
50mm	Auto-Westarpan F:4.5 for Ex.	new \$32.50
50mm	Auto-Westarpan F:4.5 for Ex.	used \$24.50
58mm	Biotar F:2. pre-set	new \$66.00
58mm	Auto Biotar F:2	used \$48.00
58mm	Zelus Biotar F:2	used \$48.00
58mm	Makro-Kilar F:2.8	used \$88.00
58mm	Makro-Kilar F:2.8	used \$88.00
58mm	Zeiss Jena Praktica	used \$88.00
135mm	Zeiss Jena Praktica	used \$88.00
135mm	Zeiss Jena Praktica	used \$88.00
135mm	Teco-Picon F:3.5 pre-set	used \$22.50
135mm	Zeiss Jena Praktica F:3.5 for Ex.	used \$22.50
135mm	Sonnar F:2.8 Olympic pre-set	new \$185.00
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200mm	Komura F:3.5 pre-set	new \$74.50
200mm	Zeiss Jena Biotar F:3.5	used \$22.50
200mm	Zeiss Jena Biotar F:3.5	used \$22.50
200mm	Steinheil F:4.5 pre-set	used \$22.50
200mm	Zeiss Jena Biotar F:4.5	used \$22.50
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500mm	Teco-Yoss, lightweight	used \$33.00
1100mm	Zeiss Jena Biotar F:5.6	used \$114.00

## STATE

## NEW BOOKS

(Continued from page 14)

However, I am at odds with his point of view on some matters. In discussing color he says: "Dramatic against-the-light pictures are not for the colour man." And further: "For colour, the contrasts should not be too great, whether they are the result of lighting or choice of subjects. . . ."

Maybe that's true for ordinary "record" color slides, but I have long followed exactly the opposite prescription when I wanted to produce a particularly striking result.

He advises (wisely) the use of medium fast black-and-white films for most sailing shots, and is against using fast films (such as Kodak Tri-X Pan) afloat. I have found that it is desirable to always have on board some fast film, for pictures of people on your own boat, in the cabin, for late afternoons, or for other dim light conditions in which good pictures may occur.

Aside from these points, this is a dandy book and a fine gift for anyone who likes boats and cameras.—J.W.

**VANITY FAIR: A Cavalcade of the 1920s and 1930s**, edited by Cleveland Amory and Frederic Bradlee, 327 pages, profusely illustrated. The Viking Press, \$10\*

In his introductory ode to *Vanity Fair* magazine, Cleveland Amory pre-

sents an excellent argument for publishing this book. "There never was, nor in all probability ever will be again, a magazine like her. She was born in 1914 and she died in 1936, and, unlike the legendary gentleman of the old school who was very good at wars but not very good between wars, the lady who was *Vanity Fair* was not very good at wars and depressions, but between them, in the golden days of the twenties, she was very good indeed. And today, as we look back at her from out of the shadowy sixties, she seems, all in all and all at once, behind her time, ahead of her time, and yet, unmistakably, of her time."

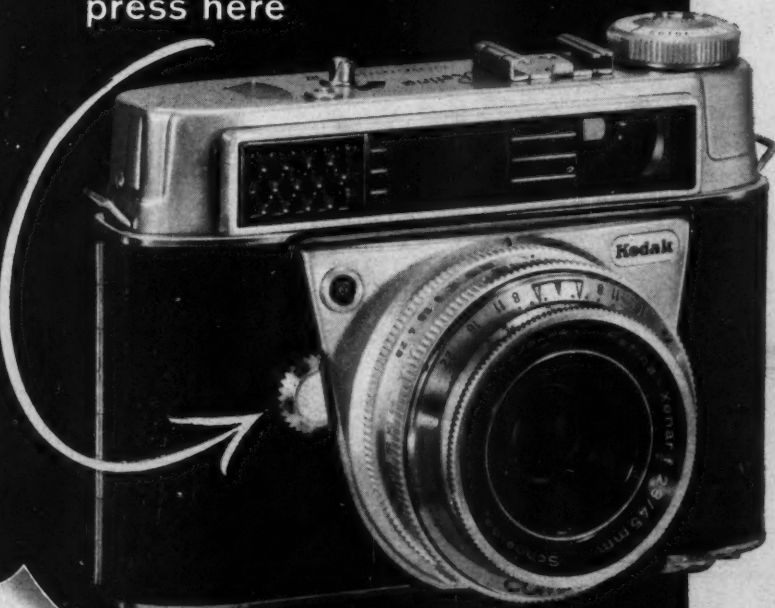
That *Vanity Fair* was one of the most exciting and influential magazines ever is indisputable. She looms large in conversations among the generation which was fortunate enough to enjoy her at the time of publication; she is constantly held up as an example of what a publication should—and could—be. Fashion and commercial photographers collect, keep, and constantly refer to old issues which they have begged, borrowed, saved or scavenged at some earlier time from shops specializing in secondhand periodicals. Now, these issues are collectors' items, rarely even obtainable on the public market. (Out of a total of ten back-date magazine stores which we called, we found one with issues of *Vanity Fair*. The price? \$3 and up. In 1935 it

sold for 35 cents on the newsstand.)

After reading the stories, essays and poems (by such writers as Colette, Cocteau, Robert Benchley, Dorothy Parker, Gertrude Stein, Max Beer-bohm); after looking at the (regrettably few) color reproductions of art masterpieces and cartoons and the countless black-and-white reproductions of photographs by such timeless greats as Steichen, Beaton, Bruehl-Bourges, Genthe, Baron de Meyer, Hoyningen-Huene and Horst, one can understand the popularity and prestige of *Vanity Fair*. For us, of course, these photographs are of primary interest. A number of them, particularly the flawless Steichen portraits (Gloria Swanson, masked behind a delicate lace scrim; Paul Robeson, tense and powerful as he appeared in the O'Neill drama *Emperor Jones*; Carl Sandburg, contemplative and at peace as he leans against a stucco wall; Leslie Howard, urbane, top-hatted—the epitome of the cosmopolite), are familiar. A number of others are not.

Here you can see a kindly and shrewd Will Rogers, photographed by Steichen; the poignant and impish child that was Jackie Coogan, photographed by Abbe; a magnificent, swan-throated Greta Garbo, photographed by Genthe; a pale, delicate and enigmatic 1928 version of Tallulah Bankhead, photographed by Hoyningen-Huene. And, of course, there are many, many more.

For automatic or  
selective exposure,  
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Now you can take pictures with dramatic side or back lighting, yet never look at an *f/stop*, never worry about under- or overexposure.

The versatile automatic exposure control on the Kodak Retina Automatic III Camera handles these tricky exposure problems for you—instantly!

**Aim, and hold.** To expose for highlight or shadow, you simply take the camera close to your subject, aim, and press the shutter release halfway down. This holds the lens-aperture setting while you back away to shooting position.

Then press the release *all* the way down—and the picture is exposed at the close-up reading.

But when your subject is evenly lighted, you just aim, shoot. The electric eye automatically adjusts the lens aperture to fit your choice of Compur shutter speeds, from 1/30 to 1/500.

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TRADE MARK

Unfortunately, the offset reproductions of these pictures resemble matte photostats of those which appeared in *Vanity Fair*. That magazine was, after all, as famous for its physical makeup as for its content. The engravings were the finest, and printing was carefully done by the top-notch Conde Nast press on the highest grade of paper. Regrettably, the impression of quality and of opulence has been lost. In addition, in the original magazines the layout was tasteful and well-paced. In excerpting from the periodicals, the editors have paid little attention to the actual appearance of the spreads, and, of course, practically none to the pacing of the book as a whole.

Despite this, *Vanity Fair* is fascinating, and particularly so to anyone interested in photographs or in magazine publishing.—P.C.

**SALOON SOCIETY**, text by Bill Manville, photographs by David Attie, design by Alexey Brodovitch, 124 pages. Duell, Sloan & Pearce, \$4.95

Of all the photographers whose work I know, David Attie is best qualified to present visual equivalents to Bill Manville's text about Greenwich Village eccentrics. Attie's haunting and poetic images (some of the techniques he uses in making them were described in the April 1960 *MODERN*) are always translations of the real into the fantastic; in them we see the world as

viewed through the scrimmed perceptions of the beats, the bums, the lost and the lonely whose lives, loves and adventures constitute the subject matter of this book.

Manville's text is sensitive, perceptive; after reading it we feel we know the characters he describes. Most of them appear as sympathetic—but not admirable. For it is obvious that his subjects are not finding what they so frenetically seek, and are motivated more by compulsion than by choice.

A highly readable and viewable book. Recommended as a particularly tasteful and successful marriage of photographs and text.—P.C.

**ANIMATION ART IN THE COMMERCIAL FILM**, by Eli L. Levitan, 128 pages, copiously illustrated. Reinhold Publishing Corp., \$6.95\*

This book makes a sound survey of the varied techniques of animation, which apply as much to entertainment films as to commercials. True, we did become somewhat tired of Mr. Wimple, the hero of the 60-second TV commercial upon which all the illustrations in the book are based; and since the animated part of this commercial consists of only the one character against two extremely simple backgrounds, we should stress that this book is no more than an introduction to the intricate field of animation. While the planning side is dealt with

in some detail, with illustrations showing how the exposure sheet is used to keep control of the many elements involved, in discussing the actual techniques of animation Mr. Levitan is hampered by his dull and limited examples.—W.H.J.

**ROME, 83 black-and-white and color photographs by Herbert List, introduction by Derek Verschoyle. Hill and Wang, \$5.95\***

Excellent photographs, technically and aesthetically, of historic buildings, statues, and sites of interest. List has avoided the dullness and sterility of many travel photographs by including the inhabitants of the city in most pictures, and exercising the patience to wait for the exact moment to shoot when lighting, angle, and the placement of people produced the most impressive composition. As a travel book, most highly recommended.—P.C.

**CHILDREN OF MANY LANDS, 120 pages. Hill and Wang, \$5.95\***

Black-and-white photographs of children by many well-known photographers, placed one to a page and beautifully reproduced. Individually, the photographs are excellent; the collection as a whole is delightful. Most highly recommended.—P.C.

\*These and other books are available through AMPHOTO; see pages 114-115.

## RETINA AUTOMATIC III CAMERA

### automatic exposure control

With this two-way automatic exposure control, you can shoot in any kind of available light—and never have to figure an exposure.

No chance of an exposure mistake! If light is too dim or too bright, your shutter release locks, and STOP appears in the finder. It's your cue to try a different shutter speed or flash. And film-speed settings go up to 1300 ASA, so you can use the fastest of the fast 35mm films.

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Amazingly, all this far-ranging versatility is built into a slim handful of a camera, masterfully finished in the Kodak Retina tradition. Enjoy handling the Kodak Retina Automatic III Camera, at your dealer's soon. Costs less than \$130.

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Kodak Motormatic 35 Camera lets you take 10 shots in 10 seconds. Power drive advances film, ready for each shot. Automatic daylight-exposure, automatic flash-exposure control. f/2.8 lens. Less than \$110.



Kodak Retina Automatic 35 Camera makes every shot a great shot. Automatic exposure control, plus full manual controls. f/2.8 lens. Less than \$90.

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**EASTMAN KODAK COMPANY, Rochester 4, N.Y.**

# TECHNIQUES TOMORROW

by BENNETT SHERMAN

**There's a limit to film speed—but with new devices it may be possible to dodge around it.**



We've discussed the speed of shutters and lenses (December 1960, January 1961). Now we come to a third member of the photographic team: the film. What about speed in films? Most often a fast

film can be compared to a slower one by saying that with the same lens and shutter speeds, the fast film will give

satisfactory pictures in less illumination. We can measure a film's speed by determining how little illumination is required to produce a certain density when the film is later developed according to the film manufacturer's recommendations. This roughly, is the way film makers specify their film ratings.

Just how fast are the best films today—and tomorrow? A look at the H & D curves usually supplied by the manufacturer will be a guide (for an explanation of H & D curves, see MODERN, June 1960). For example, Royal-X Pan, Eastman Kodak's highest speed commercial emulsion, will give a noticeable exposure above the base fog when the illumination of 1/1000 meter-candle hits it for one second. This means that with an f/2 lens of good transmission, and a shutter

speed of about 1/10 sec., a just noticeable exposure can be obtained when a photograph is taken of an object with an illumination of around 1/200 foot candle—the light from a single candle some 14 ft. away.

Dr. R. Clark Jones of the Polaroid Corp., in a series of articles which appeared in several major technical journals, showed that this kind of speed actually amounts to an absolute efficiency of about 1/200 or ½%. He also showed that many medium-speed films have the same absolute efficiency as high-speed films, because, in the latter, increased graininess offsets the increased speed. The graininess sets a "confusion limit" to the smallness of the increased density that can be detected. No matter how sensitive our photoelectric instrument, the graininess will give rise to "noise" or uncertainty in our measurements. (This "noise" in scientific measurement is one of Nature's fundamental limits imposed upon us in our efforts to get better results or measurements.) Thus, less grainy (and slower) films can have what amounts to the same efficiency, even though they may take more subject illumination to get a good exposure.

Astronomers get a little more sensitivity and response from their films and plates by giving them a slight exposure to light either before or after the photograph is taken in the tele-

## Now... discover the difference

### KODAK CAVALCADE PROJECTOR SYSTEMS



**Kodak**  
TRADE MARK

scope. You might try this experiment: using Royal-X Pan or Isopan Record, take some pictures with the light of, say, one candle, at various exposure settings. Then try a series with a pre-exposure to a white card at a distance of about twice the subject distance from the candle. This pre-exposure has the effect of raising the background fog level of the film above the base fog, and usually gives a noticeable increase in film sensitivity in very low-light photography.

It is generally agreed among film chemists that there does not seem to be much hope for greatly increasing film speed in the near future. Some improvement will be made—e.g. in graininess—but that's about all.

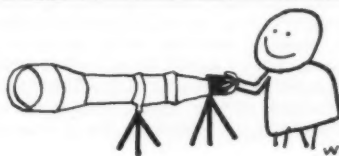
#### It isn't film, but . . .

If much higher sensitivity is not possible with photographic emulsions, it is possible with such photoelectric devices as the vacuum photocell, the cadmium sulphide photoconductive cell (this is currently finding great popularity) and the TV image orthicon. With the exception of the last, these devices do not produce pictures by themselves, but have to be "scanned" over the image of the subject formed by a lens. In a sense, the TV orthicon also does this required scanning, but internally. These devices can show efficiencies up to and beyond 10%, and can respond to subject illumination

10 or 100X lower than the best films in comparable exposure times. The big problem is how to produce the scanning (TV is a mighty complex electronic system) and get the response out of the device without running into the "noise" problem again.

Next month I shall describe a recent experiment in combining photography and the photoelectric light detector into one working, image-forming device. This new method was worked out by Dr. Lallemand of the Paris Institut d'Optique, in France. It has shown an equivalent ASA speed of some 30,000 or higher, particularly for very low-light levels.

Perhaps, in the near future, some enterprising electronic physicist will come up with a light amplifier made like a transistor, in a thin plate, having image-forming properties, which can be put just in front of the film and give an increase of five or ten times in effective film speed without introducing any background "fog" or "noise" of its own. This would make a handy film booster for extremely low-light levels.—THE END



## SALON Calendar

### \*THIRD IDAHO INT. PHOTOGRAPHIC EXHIBITION, Boise, Idaho

Closes: April 25

Exhibit: May 9-28

Fee: \$2 prints, \$1 slides

Sponsors: The Boise Photographic Society, The Boise Camera Club

Entry Forms: Prints—Don E. Haasch, 3005 Teton St., Boise, Idaho; Slides—DeVoe Wheeler, 303 Daisy St., Boise, Idaho

### \*1ST THAI INT. SALON OF PICTORIAL PHOTOGRAPHY, Bangkok, Thailand

Closes: April 30

Exhibit: July 15-25

Fee: \$1

Sponsor: The Photographic Society of Thailand

Entry Forms: Mr. B. M. Podaka, P.O. Box 1258, Bangkok, Thailand

### \*INT. EXHIBITION OF COLOUR PHOTOGRAPHY, Hamilton, Ontario

Closes: May 20

Exhibition: June 9-11

Fee: \$1.25

Sponsor: Color Photographic Assoc. of Canada, Inc.

Entry Forms: John B. Giles, 383 Main St. East, Hamilton, Ont.

\*Uses standard PSA practices

## between showing slides and showmanship

Showmanship is more than arranging slides in a tray.

It's a smooth performance that puts an audience at ease. It's control of pace and timing that keeps interest high. It's just-right picture size, clarity, and brightness. And it's equipment that exactly fits the job at hand.

These all add up to *showmanship*—the kind of performance that comes naturally with Kodak Cavalcade Projector Systems.

With Kodak Cavalcade equipment you can easily custom-assemble a system to fit your needs. You can fill big, medium, or small screens, in big or small rooms. You can control remotely from any distance. You can handle any 2x2 slide. You can even create perfectly synchronized slide-with-sound shows. And you can adapt to each new need as it arises.

You start with a basic projector, add the extras as your needs change or your sense of theater grows. And at every stage your Kodak Cavalcade Projector provides every aid to showmanship.

**Image control.** On the Model 510 you start with 500-watt power, enjoy top brilliance with a 5-inch f/2.8 lens. You can show through a universal or high-efficiency 35mm condenser. Switch to hi or lo brilliance at will. You may add a zoom lens for flexibility. Choose 3-, 4-, or 7-inch lenses to fit big and small screens at long and short projection throws.

**Tempo control.** On automatic, your Cavalcade Projector changes slides at 4-, 8-, or 16-second intervals. Change is quick, with no lag or drag. Even dog-eared slides can't jam. At will, you skip ahead, reverse, repeat, override the automatic to hold a slide on the screen. You control pace at the projector—or plug in a remote cord, and control from your easy chair or lecture stand. Or, you can add as many 25-foot extensions to your remote-control cord as you need.

**Smooth efficiency.** You edit instantly, right a wrong-side-up slide in a moment. You point out details on the screen with a built-in shadow arrow.

Slides don't "pop" out of focus—they're automatically preconditioned by warm air. Each slide is protected in its own steel carrier. You choose trays that handle any type of slide mount you prefer.

**Add sound.** When you want to add the final touch of showmanship—synchronized sound—your Kodak Cavalcade Projector is ready. Plug in a Kodak Cavalcade Programmer, hook up a tape recorder—and you're ready to record and play back. In playback, signals on your voice-and-music tape change each slide at the correct moment on the screen.

See the complete and unique Kodak Cavalcade Projector System at your dealer's. Let him help you custom-assemble the components that best suit your needs.

**Model 510** with hi-lo control, remote-control cord, universal and 35mm condensers. With 5-inch f/2.8 lens, less than \$140. With Zoom Lens, less than \$160. **Model 520** with 5-inch f/3.5 lens, less than \$110.

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The more you know about photography . . . the more you will count on Kodak

**EASTMAN KODAK COMPANY, Rochester 4, N.Y.**

★ **PICTURE IT NOW—**  
Enjoy it again and again

# MOVIE VIEWER

WILLIAM JOHNSON

**A recently published book raises a simple but tricky question: What exactly is a film?**



People who really like movies often feel uneasy when they see certain works that, on the face of it, bring distinction to the medium. First, there are the movies derived from important plays and novels, like Mankiewicz's Hollywood version of *Julius Caesar* or Lean's adaptation of Dickens' *Great Expectations*, which lead some spectators to say, "There, movies aren't just trash, vehicles for stars who can't act, fomenters of juvenile delinquency, etc." Unfortunately, although we're glad to

find the movies getting a kind word from usually indifferent or hostile quarters, we don't feel that the film is at its best when leaning on other media.

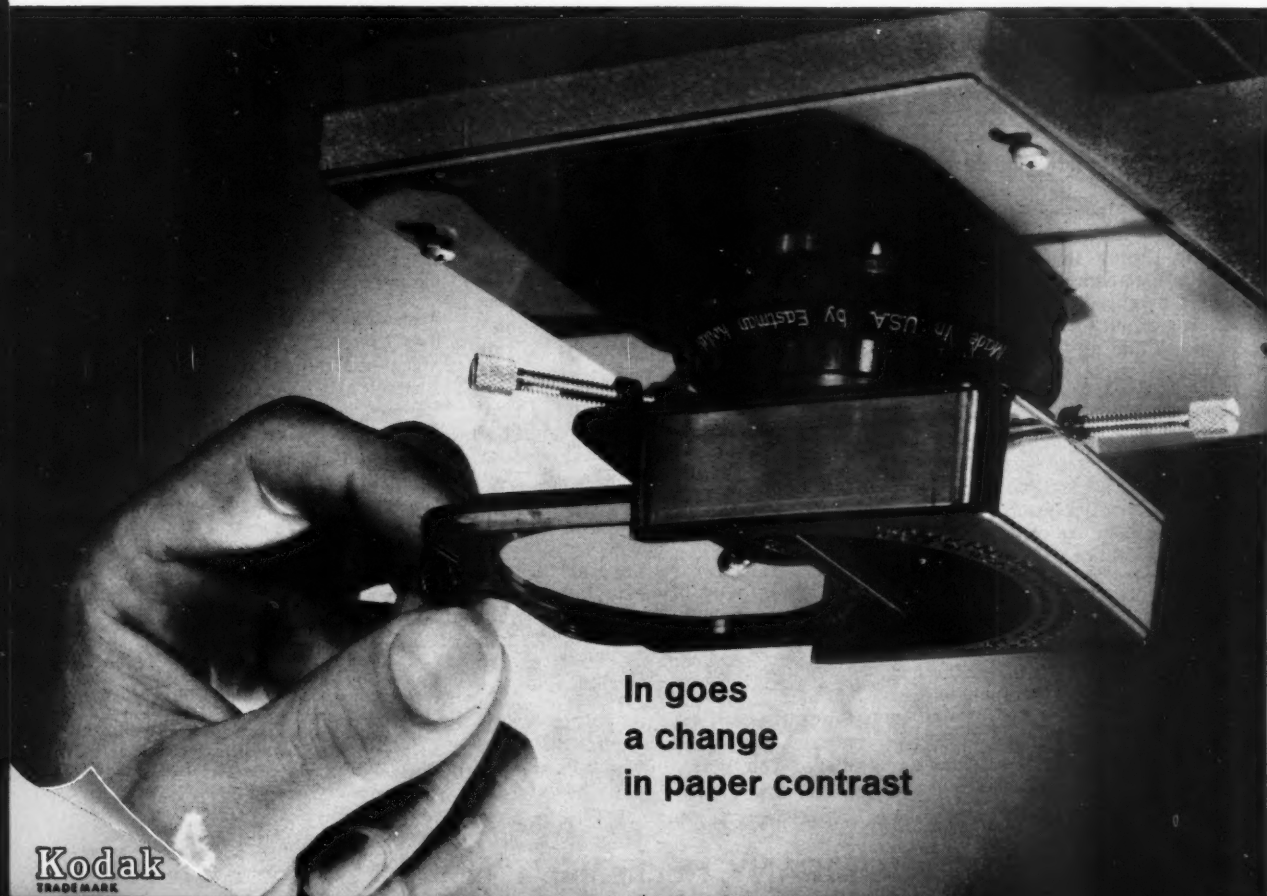
A similar uneasiness arises when experimenters who may be vehemently opposed to photographing plays or novels produce films with artistic sets, abstract patterns, superimpositions and a wealth of symbols, which lead some spectators to say, "There, the film is an art after all!" Unfortunately, these experimenters are also making the film lean on another medium, painting this time.

One movie-lover has explored and analyzed his feeling of uneasiness about such films. In *Theory of Film* (Oxford University Press, \$10), Siegfried Kracauer sets out to define the elements that a truly cinematic film is made of, and the kinds of subject matter that it is best fitted to deal with. In summary, he believes that the truest elements of the film (equivalent to the words of a book or the pigments

of a painting) are shots of reality—of movement, particularly fleeting movement; of inanimate objects, particularly those that are smaller or bigger than the human scale; of familiar objects; and of events that arouse violent emotions. Each shot should as far as possible appear unstaged and fortuitous; it should not be made to convey a precise meaning.

Kracauer's arguments in support of this thesis are not always convincing, since he is trying to account logically for a matter of feeling (like the uneasiness mentioned above). But in crystallizing and analyzing these feelings he is thoroughly successful. What first makes us uneasy when we see an uncinematic film is the physical setting. An extreme case, which makes it easier to understand the subtler ones, is the dream sequence of Salvador Dalí's paintings in Hitchcock's *Spellbound*. Though these paintings might in themselves give a convincing impression of a psychotic dream, they lose their immediacy when filmed. I can still remember the letdown I experienced on seeing this sequence, how flat and artificial it seemed after the scenes of three-dimensional reality that Hitchcock had used so effectively—like the view of criss-crossing railroad tracks that aroused the hero's psychosis.

Many adaptations of stage plays have settings that are too consciously, too lifelessly arranged. On the stage



In goes  
a change  
in paper contrast

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we accept the convention of painted flats, partly because the actors are there in the flesh to give all necessary life to the production; but on the screen, which does not have this kind of immediacy, the settings must appear as real as the actors. While it is not too difficult to fabricate a convincing interior, the difficulty becomes acute with exteriors. Two out of many examples that smell of airless artificiality are the approach to the hotel in *Separate Tables* and the painted city backdrops in *General Della Rovere*, both of which tend to weaken our involvement in the action. Oddly enough, the former is less disturbing because the whole movie is studio-made, while the artificial exteriors in *General Della Rovere* are shown up badly by other, real exteriors. A director cannot automatically give an artificial movie the semblance of reality by inserting a few live exteriors: the mixture demands skill. In *Sons and Lovers*, for example, Jack Cardiff offsets much of the uncinematic nature of his material by a good selection of real exteriors, a careful attention to detail in the studio interiors, and vigilance in lighting both.

#### Take the play from screenplay

So far, in discussing Kracauer's thesis, I have been dealing only with the elements of the film, the raw material from which it is constructed. In the second and even more important

part of his book, Kracauer turns to the film as a whole, setting out to define the types of themes and stories that are best suited to cinematic treatment. He does not, as you half expect, limit the film to documentary fact; far from it. Despite his frequently abstract style of writing, Kracauer keeps his theories tethered close to his film-going experience, which tells him that fictional films can be more satisfying than certain documentaries.

Roughly speaking, he defines an uncinematic story as one that is self-contained and neatly constructed, and in which the emphasis is entirely on personal relationships. You'll see that this applies particularly to stage plays, and that Kracauer goes beyond the stock objection that stage plays are too talky for the screen. It's not so much the amount of talking that is uncinematic, but the fact that the talking is concerned with abstract ideas and emotions, and the stage provides for no integral use of objects, places or even physical movements except those broad enough to be seen at the back of the orchestra. The camera cannot help recording objects and minor movements, giving them more importance than the spoken word, so that a satisfying film must use these physical elements to convey what is left almost entirely to the dialogue on the stage.

Kracauer rules out the self-contained and neatly constructed story be-

cause it is at odds with the true elements of the film—shots of reality. The shot of a real street, or even of a studio-fabricated living room, must always contain a number of objects which suggest events outside the well-rounded plot. In a drawing room comedy, for example, any close-up will show details of skin texture, hair style, involuntary physical movements such as blinking, and so on, all of which undermine the artificial, idealized world in which drawing room comedies take place. So Kracauer defines the truly cinematic story as one that partakes of the "flow of life," as an episode in the larger reality outside rather than a story that has a definitive beginning and end. It is this quality that strengthens the appeal of such films as Tati's *Monsieur Hulot's Holiday* and Zinnemann's *The Sundowners*.

#### Where's the borderline?

Kracauer is honest enough not to avoid the problem posed by certain satisfying films that seem to be uncinematic. There's the awkward case of Hitchcock, for example: his plots tend to be neatly constructed and his sets are often entirely artificial (as in *Rope* and *Rear Window*), and yet his films are for the most part uncannily well suited to the medium. Kracauer explains this, reasonably enough, by saying that the detective mystery relies on

(Continued on page 26)

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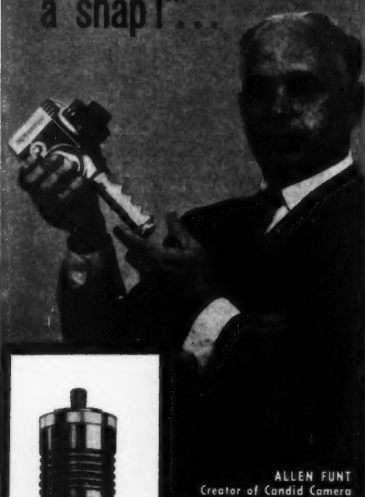
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## MOVIE VIEWER

(Continued from page 25)

a search for visual and physical clues which keeps the camera's nose close to reality. Sometimes, however, his explanations are far-fetched, as when he accounts for the suitability to the screen of the "little man" theme (as in Chaplin's films and De Sica's *Umberto D*) by comparing it to the close-up. And elsewhere he finds somewhat devious reasons for defending films which seem to me to be uncine-matic—Rene Clement's *Gervaise*, for example, a skillful but rigid imitation of real-life squalor.

These weaknesses are the small price that Kracauer pays for avoiding rigidity in his theory, and they enhance rather than detract from the persuasiveness of his conclusions. He is so persuasive, indeed, that I'm afraid some film makers may be tempted to work in accordance with his theory—and Kracauer makes it clear that he would not approve of that. He knows that no good work of art is ever made by strictly observing aesthetic theory, and also that the film could not develop without such exciting failures as the Bunuel-Dali *Un Chien Andalou* or Orson Welles' *Othello*.

### Around the releases

*The Misfits* (dir., John Huston; phot., Russell Metty; screenplay, Arthur Miller) is an outstanding Hollywood movie that needs more space for review than is left here. I will discuss it next month, together with *The Bridge* (dir., Bern-

hard Wicki; phot., Gerd von Bonin), an anti-war film from Germany.

*Cimarron* (dir., Anthony Mann; phot., Robert L. Surtees) opens with a violent land-claiming rush and then trails off into routine domesticity, with Glenn Ford and Maria Schell both charming but miscast. The camera is well used in recurring scenes that show the growth of a pioneer city.

Two new British films are concerned with criminals. *Two Way Stretch* (dir., Robert Day; phot., Geoffrey Faithfull) is yet another vehicle for Peter Sellers, who is amusing enough as a wily Cockney convict. But the plot is too contrived to bring easy laughter, the humor verbal rather than visual.

*The League of Gentlemen* (dir., Basil Dearden; phot., Arthur Ibbetson) can be enjoyed simply as a crackling comedy-thriller, but it also has strong ironic overtones that you can take or leave. Scripted by Bryan Forbes (of *The Angry Silence*—see this column, February 1961), it brings many variations to the familiar plot of a gang of crooks planning and executing a "perfect" robbery. The crooks here are all ex-army officers, and the robbery is planned with strict military organization, in the course of which these thoroughly nasty individuals become a strangely sympathetic team. Dearden's direction probably reaches its height in a brilliantly intricate sequence where the crooks raid an army camp for weapons. Arthur Ibbetson (also of *The Angry Silence*) does fine low-key interiors, and his misty London exteriors enhance the final, taut advance into "battle."—THE END

## Contests

The Photography Department of Wisconsin State College announces the **6th Annual National Intercollegiate Photo Contest**. Individual college students may enter prints in each of four classes: action, scenery, portraits and human interest. College newspapers and year books may enter 10 prints representative of the work of their publications. There are individual and school prizes. Last day for entries is March 15. Write: Photo Contest, Wisconsin State College, Eau Claire, Wisc.

A trip to Bermuda for two, including hotel, meals and sightseeing expenses, is first prize in a **35mm slide contest** conducted by Meston's Travels, Inc. Anyone may enter any number of 35mm color slides of tourist interest. The contest closes March 15. Rules can be obtained from any Meston color slide dealer, or from Meston's Travels, Inc., 3801 N. Piedras St., El Paso, Texas.

Photographers have until March 20 to enter the **3rd Annual Religious Arts Festival Photography Com-**

**petition**. A maximum of four prints and/or slides which express a religious idea or record a religious activity or event may be entered. Prizes of \$15, \$10 and \$5 will be awarded in each division. Write to Photography Section, Religious Arts Festival, 50 Plymouth Ave. North, Rochester 14, N. Y.

Students in grades 9 through 12 in any high school in the United States or its territorial possessions are invited to enter their color or black-and-white pictures in the **1961 Kodak High School Photo Awards** contest. Prizes totaling \$11,750 will be awarded. The closing date is March 31, 1961. For further information and entry forms, write to Kodak High School Photo Awards, Rochester 4, N. Y.

The publishers of *New Photographs* invite photographers to submit pictures for the next edition of this annual. A fee of £5 (\$14) for black-and-white and £10 (\$28) for color will be paid for each photo used. Prints should be 10 x 12; transparencies larger than 35mm. Entries must reach the Editor, *New Photographs*, Dorset House, Stamford St., London S.E. 1, England by April 7.

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# modern COLOR

by NORMAN ROTHSCHILD

Good transparencies need a good screen. Here are some pointers on the best types to buy.



After you've made every effort to get sharp, properly composed slides with good color rendition, it just doesn't make sense to project them on a folded bedsheet or off-color wall. But just what makes

a good screen? Should you buy a matte, metallic, beaded or lenticular type? How big should it be, and how about setting up and storage?

If it's your aim to show as much detail as possible in your projected slides, you'll need a screen with as smooth a surface as possible. Both matte and metallic screens fit this category. Matte screens have the lowest reflectivity of all the various screen types, and are not too suitable for images larger than about 30 x 30 in. unless you have a projector with at least a 500-watt lamp and a lens faster than f/3.5.

The chief advantage of matte screens is that viewers will see about the same image brightness from a variety of viewing angles. This is important if (as is often the case) many in your audience have to sit to one side of the screen. Metallic screens have the highest reflectivity, but the image must be viewed from an angle as close to the lens axis as possible. Viewers sitting even slightly to one side will see a much darkened image. Any wave or fold in a metallic screen will deflect the light away from the viewer and make that area appear as a dark mar in the image. Since metallic surface screens do not depolarize the light, they are used for stereo with polarized light.

The beaded screen, as the name implies, has a surface covered with a myriad of tiny beads, and gives an image which is far more brilliant than a matte but less than a metallic screen. Viewing angles are better than with a metallic screen but it's still best not to seat viewers too far to one side. The beaded screen surface obscures the finest detail of sharp transparencies. This is particularly disturbing to viewers seated up close. For best results, use as large a screen as possible and fill it to the edges with the image. Seat the nearest member of the

audience about three or four feet from the screen.

Probably the greatest advance in screen surfaces is the lenticular screen. It offers very high reflectivity, plus a very wide viewing angle. In its construction, a series of cylindrical or lenticular lenses is molded right into the screen surface. These lenses reflect the light in all directions. In earlier versions of this screen type the lenticulations ran up and down the length of the screen only. This tended to give images which, when seen at close range, seemed to be distorted or striated in one direction. In the latest type of lenticular screen, such as the Uniglow and Optiglow variety made by Radiant Manufacturing Corp., P.O. Box 5640, Chicago 80, Ill., there is a horizontal as well as a vertical pattern. The horizontal pattern assures that viewers sitting either lower or higher than the screen will also benefit from maximum image brightness.

### Two lenticular models

The Uniglow screen has its lenticular pattern in a white lustrous surface. Brightness is comparable to a good beaded screen. It reflects light at angles up to about 180 degrees (90 degrees to either side of the lens axis). It's intended for general viewing in darkened rooms. In the Optiglow screen, the lenticles are molded into a metallic surface. Illumination is much brighter than with the Uniglow—so bright in fact, that you can show slides successfully in normally lighted rooms. This feature is possible only with lenticulated metallic screens since they resist "ambient" light—that is, any light coming from sources other than the projection lens. The viewing angle recommended by Radiant for Optiglow is up to 100 degrees (50 degrees to either side of the lens axis). The lenticular pattern in Radiant screens is very fine, being just about invisible at normal viewing distances.

Now let's go on to screen shape and size. First of all, you'll want a square screen, since you'll be showing both vertical and horizontal images. With a narrow, rectangular screen, such as the kind used to show movies, you'll find yourself limited in image size to the screen's narrowest dimension. (And of course, a square screen can be utilized for movies too. Many makes have a mark on the back of the fabric indicating how far they should be pulled out for this purpose.)

In small rooms you'll probably find  
(Continued on page 32)

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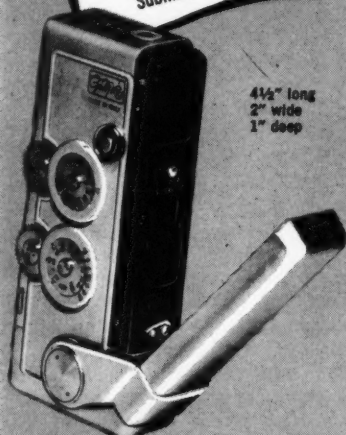
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# ULTRA MINIATURE

by JOSEPH D. COOPER

### Developing and Printing, Part IX: Don't overlook the psychological factors when making quality prints.



The major problem in making prints from your ultraminiature negatives stems from the obvious fact that you are working with a tiny rectangle which must be enlarged many times more than its 35mm and larger size brothers to produce the same size print. You must keep in mind that although you can obtain excellent results with some of the slower films, your prints will not be quite as good as those from the same film shot in a larger format, either in graininess or in sharpness.

For this reason you must rely to some extent upon psychological impact to heighten the viewer's impression of sharpness and depth when looking at the finished print. To this end, I suggest that you always make your prints on a lustrous, brilliant paper, and that you produce prints which are slightly on the contrasty side.

While there are a great many different enlarging papers made by different manufacturers, I suggest that you standardize and work with one or two. For tonal brilliance as well as flexibility in use I prefer Agfa Brovira, Kodak Medalist and Kodak Polycontrast. The first two are available in individual paper grades while Polycontrast is a variable contrast paper. (For a full rundown on papers and processing solutions, see MODERN, November 1960.)

Generally speaking, a wider contrast range is to be had with the individual contrast grades of paper than with variable contrast papers. If you use a variable contrast paper, you may want to keep an additional supply of single contrast grades 1 and 5 on hand, since these contrasts can only rarely be achieved with the variable contrast papers.

The paper surface as well as its type is important in contributing to the impression of quality. I suggest a fine-grain luster, fine-grain high luster

or silk luster—whichever is available in the particular type of paper you select. Glossy paper is generally not desirable, because it reveals the most minor defects in the negative. If you do use glossy paper, dry it to a matte finish by using a blotter roll or by putting the print's back rather than face in contact with the ferrotyped surface of your dryer.

For making black-and-white prints from color negatives, I suggest Kodak Panalure, which has panchromatic sensitivity and is specifically made for this purpose.

For any particular paper use one of the developers recommended by the manufacturer. I use Neutol for the Agfa papers mentioned, and Dektol for the Kodak papers.

### For that peppy look

To get a little extra contrast in your prints, underexpose slightly in the enlarger and overdevelop, using a developer of standard dilution. For a more vigorous effect, yielding greater contrast, decrease the developer dilution, underexpose a little more, and increase developing time.

There is some risk that in pushing development in this way you may fog the paper. To prevent this, you can use an anti-fog preparation, such as a 10% solution of potassium bromide. While this helps retain the whiteness

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of highlights, it may do so at the expense of the blacks, which can lose some of their depth.

Many commercial darkrooms use ferricyanide for contrast control. Potassium ferricyanide is a reducing agent which can be used either for local or overall reduction. A commercially available product is Kodak Farmer's Reducer. The print is immersed in a weak solution if the purpose is to clear highlights and to improve shadow detail slightly. If you desire only to clean specific areas, apply the solution with a brush or cotton swab.—THE END

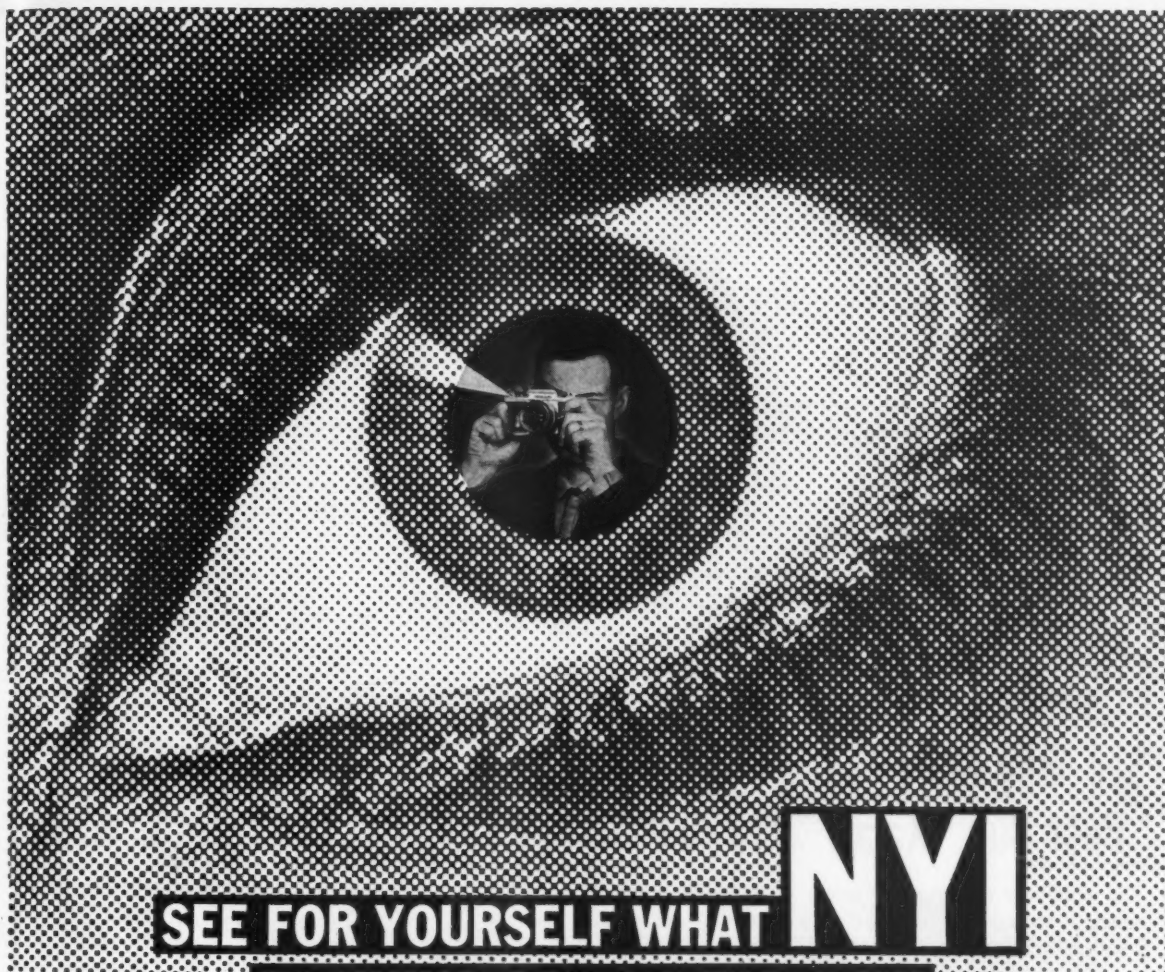


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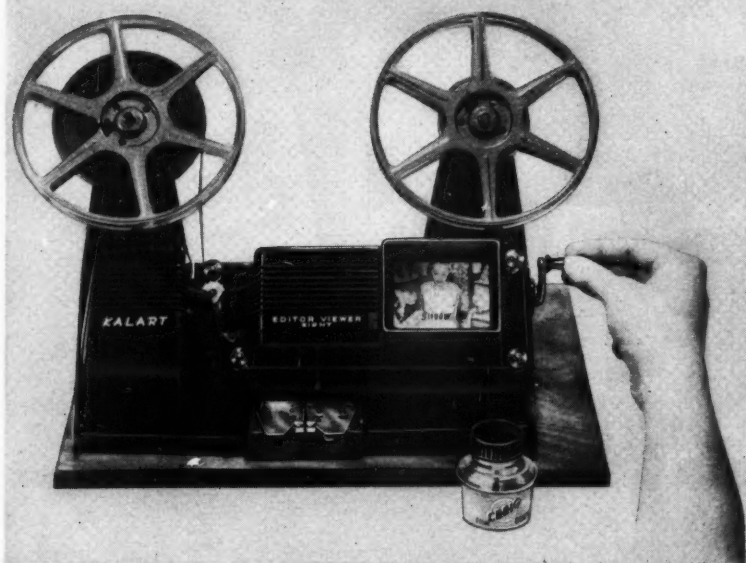
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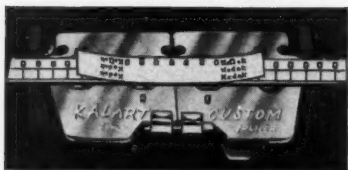
# TURN IT...



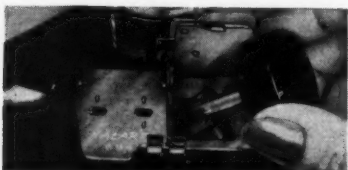
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## MODERN COLOR

(Continued from page 28)

a 40 x 40-in. screen quite sufficient. If you occasionally have to lecture to groups of 30 to 50 people, such as at a camera club, you may find it desirable to have a 50 x 50- or 60 x 60-in. screen on hand. Larger screens are not generally used by amateurs, unless they own a projector with a powerful light or a wide aperture lens, or both.

The actual image size you can get on any screen will of course depend on the size of the slides, the focal length of the projector lens and the projection distance. A good chart giving these figures for various slide sizes and 8, 16mm movies is available from Radiant. So is an excellent booklet called *The Secrets of Fine Showmanship*. This booklet contains data on both taking and showing slides, including data on seating arrangements and audience capacity for various screen widths and room areas. I suggest you send 25¢ in coin to Radiant to defray handling and mailing costs.

### Stand or hang?

Now let's take up screen construction and care. Most slide makers live in homes where a screen can't be set up permanently. For these, a folding tripod screen which can be set up quickly, and stored in the corner of a closet when collapsed, is best. A carrying handle is generally provided on the better makes for easy portability. There are also so-called table screens. With these, however, you must depend on the height of the table being correct for your purpose. Tripod screens are adjustable in height. For more permanent installations, such as in a play room, basement or special projection room, you'll want to investigate wall screens. There are inexpensive types which can be hung from a hook or the moulding, or more complicated types which are operated like a window shade, by rope, pulley or even by electric motor.

You should treat your screen with the same respect as you would a good optical instrument. Keep it away from damp and heat. If you live in a tropical or subtropical area, particularly one in which there is much danger from fungus, make sure the screen you buy is anti-fungus treated. Dust can ruin screen surfaces. The best place to keep a screen is in a case specially designed by its maker for it. In general, matte, metallic and lenticular screens can be cleaned by dusting off, and then wiping with a slightly damp cloth. Limit treatment of beaded screens to light dusting, since rubbing these surfaces can dislodge the beads. If your screen gets very dirty, consult the manufacturer about cleaning it. If the paint of a white screen has become badly yellowed there's little you can do except replace the screen. In the case of small inexpensive screens it's best to buy an

(Continued on page 44)

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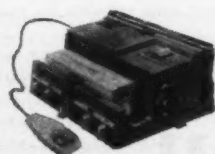
*Other models from \$54.50*



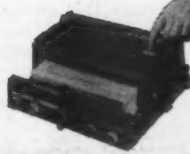
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When you own the Heiland Pentax H-1, you own the lightest, most compact camera in the 35mm single lens reflex field... a camera whose classic styling and functional design will never be outdated. You get a razor sharp 55mm Auto-Takumar *f*/2.2 lens coupled to a diaphragm which stops down automatically when the shutter is released. You get a superior viewing system incorporating a brilliant pentaprism finder with fresnel lens and an instant-return mirror of advanced design.

The H-1's focal plane shutter has speeds of from 1 to 1/500 sec., plus Time and Bulb (check on how many SLR's in any price range have provision for time ex-

posures) on a single, non-rotating speed dial. You get all these features, plus a short-throw film advance lever which automatically cocks the shutter and advances the film counter; a smooth rapid wind crank; FP and X flash synchronization; a threaded lens mount which accepts a wide range of interchangeable lenses; a "cocked" indicator; a color-coded film speed reminder dial, and positive double exposure prevention.

Does this sound like a lot of camera? We think it is, and so do the experts who call it the outstanding camera value in the world today.

If you're looking for a truly fine camera at a reasonable price, take a look—a really critical look—at the Heiland Pentax H-1. Try its smooth-operating controls... compare it with other 35mm single lens reflexes... then see the full line of Heiland Pentax accessories which will adapt the H-1 to any photographic situation. Your authorized Heiland Pentax dealer will be happy to demonstrate this exceptionally fine new camera to you, so make it a point to visit him soon!

For folder giving complete details on Pentax cameras, write: HEILAND DIV. MINNEAPOLIS HONEYWELL, 5212 EAST EVANS AVE., DENVER 22, COLORADO.

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# BEHIND the SCENES

**Lightening the darkroom burden, or  
Where did all the earnest black-  
and-white workers go?**

It will come as no surprise to hard-working darkroom addicts that many of our former brethren have defected completely to the ranks of the color photographers wherein photographs are shot, films sent to the processor and the resulting transparencies projected to captivated or not-so-captivated captive audiences.

Actually, the great challenge in photography, technically and aesthetically, is producing the great black-and-white print—and there remains a hard core of black-and-whiters who know it and work at making them.

Darkroom equipment today is excellent and far superior in ease of operation and flexibility to the products available before World War II, when darkroom zealots were at their height numerically. The lack of continuing or heightening interest is sometimes attributed to the inroads of color photography, or TV viewing. Since Kodachrome dates back to 1936, the existence of good color material can't be blamed, and the great number of avid color shooters knocks out the TV argument.

The actual process of making black-and-whites may be at fault. We must face the truth that producing a good print requires a darkroom either permanent or impermanent, a number of messy chemicals which must be mixed, stored and poured, and time. Although monobath printing solutions have all proved somewhat less than adequate, the Cormac Unikit for negative processing has certainly shown that the time, effort and chemicals for film development can be reduced to a minimum, but print making is still a rather expansive operation despite claims as to compactness from various home-processing do-it-yourself lab manufacturers.

Is this situation about to get a much-needed kick? The indications are that it might. The first whiff of what is to come, possibly, is called Rollaprint.

Actually it's the product which we reported on in January as seen at the Photokina in Cologne, Germany, under

the name Autoprint. Here's the basic idea. For \$19.95 you can buy a handsomely designed plastic combination printer and processor which can turn out very acceptable damp dry contact prints in about ten seconds and can be used in ordinary roomlight.

## Just press and roll

Anyone who has worked an office copying machine which uses chemicals will find the shape and form of the Rollaprint similar but smaller. On the left is a 3 1/4 x 4 1/4 contact printer with a single light source and diffusing glass and a hinged platen to hold the negative and contact paper together. On the right underneath the plastic cover is a shallow double tray with developing solution in one section and a stabilizing and drying solution in the other. By feeding the exposed paper through a roller system, the paper passes from one solution into the other and finally out into your hands. Voila, a developed print!

Rollaprint paper, now made in France, is a single contrast grade, slow emulsion which will not fog measurably if exposed to moderate roomlight. Part of the developing chemicals is contained right in the paper; the rest is in the solution. What the exclusive U.S. importers, U.S. Photo Supply Corp. of Washington, D.C., are most interested in selling, of course, is the paper which will work with the unit. The cost of each 3 1/4 x 4 1/4 sheet works out to about 3¢.

The lack of various paper grades isn't the great problem it seems. Contrast changes equal to between two and three paper grades can be affected by changes in printing time and by pre-fogging the paper. Exposing the en-

*(Continued on page 36)*



1. Fill tray with two solutions.



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- D. 1000mm Takumar f/8.0
- E. Right angle finder and bellows unit.
- F. On hand: 35mm Auto-Takumar f/2.3

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**BEHIND THE SCENES**

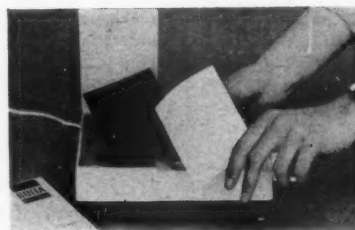
(Continued from page 35)

tire surface to white light cuts the contrast when you're printing contrasty negatives.

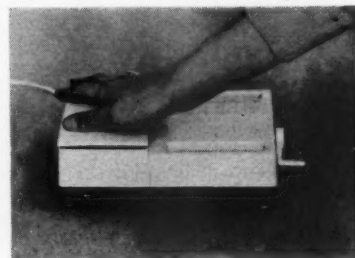
A brief examination of the process indicates that there's nothing really "new" in any part of it. Many of the better office copying machines can make contact prints (called in office parlance continuous-tone reproductions) but the cost of these machines is often 100 times that of the Rollaprint unit or more.

Besides the paper, the importer intends to sell the processing chemicals. Two color-coded plastic bottles, looking much like catsup and mustard containers, will handle 100 prints. The pair will sell for \$1.95. Although the developing agent, according to

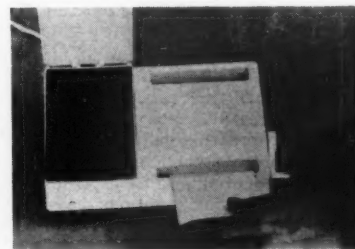
(Continued on page 38)



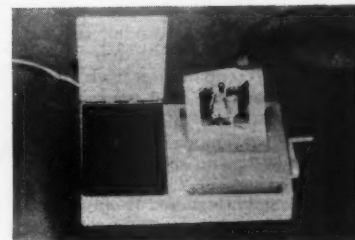
2. Place paper over negative.



3. Make contact print.



4. Run paper through rollers.



5. Lift out finished, dried print.

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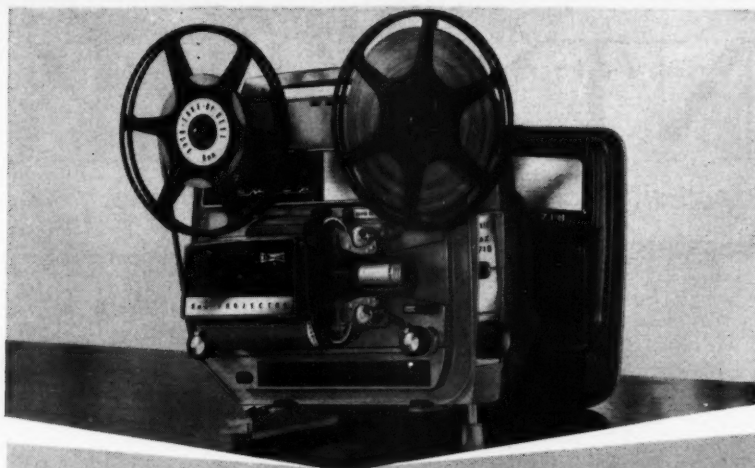
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# 35MM

by JOHN WOLBARST

## How to choose a 35mm camera, Part 5: Problems common to all types of single-lens reflexes.

The description "35mm single-lens reflex" covers so many cameras of such wide variety in type, construction, and picture taking ability that it has meaning in regard to only one essential characteristic.

That is: With all these cameras a mirror system lets you view the subject through the taking lens up to the moment you press the shutter release, at which time the mirror flies out of the way, the shutter opens and closes, and the film records substantially the same scene you were viewing through the lens.

Despite their dissimilarities, which would need a fair sized book to describe fully, all 35mm SLR cameras have in common certain principles and problems of design, construction and, most important, use. Since I propose to devote a series of columns to SLR matters, in this one I shall present some ideas which, I believe, relate to all 35mm SLR cameras.

First I would like to deal with the widespread but nevertheless incorrect impression that when you look through the viewfinder of a SLR you always see exactly what will be on the film.

### How correct is your view?

In order to focus sharply on a ground-glass screen, such as is found in most SLR cameras, it is desirable to focus with the lens at widest aperture. This not only permits the greatest amount of light to enter, but also takes advantage of the shallow zone of sharp focus (also called depth of field) at wide apertures which makes subjects pop into and out of focus quickly as the lens is moved in and out. Then the lens is closed to the proper opening for correct exposure (nowadays mostly automatically as the shutter is released) and the picture is made with an entirely different subject/depth-of-field relationship than that which was visible on the viewing screen. The only exception to this is when shooting at widest aperture.

Some cameras have a "preview button" that lets you close the iris diaphragm manually so you can judge what will and won't be in focus. However, even those who have such a device on their cameras don't use it consistently, and if they do press the but-

ton there's some doubt in my mind as to just how accurately they can see the sharpness at small lens openings.

Quite a different situation occurs with cameras such as the Contaflex, in which the main area of the viewing screen acts merely as a brilliant finder, and has no focusing function at all. In the center of the finder is a small ground-glass ring surrounding a special type of prismatic rangefinder; either can be used to focus.

With such a system virtually everything on the main viewing screen appears to be in focus at all times. While this may correspond to the picture results when using fast film in bright daylight, it is completely incorrect when compared to what the film records in a dim-light wide-aperture situation.

I mention these discrepancies between what we see on the viewing screen and in the finished picture because lack of information on this point may lead to confusion and disappointment for SLR users. This is no criticism of the SLR systems; it's simply a fact to be aware of.

### How accurate is the focusing?

In a SLR the image of the subject formed by the lens must travel two paths—first, via a mirror to the viewing screen (which you ordinarily observe through a pentaprism), and later to the film plane, after the mirror moves out of the way and the shutter mechanism operates.

If the camera is well made, the light path distances from lens to viewing screen and lens to film plane will be so closely matched that when an image is sharply focused on the viewing screen it will also be sharply focused on the film. Unfortunately, this is not always the case. In fact, noticeable inaccuracy in these two measurements is fairly common.

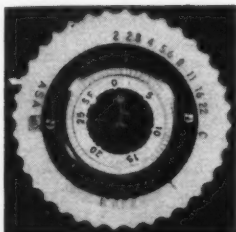
In such cases it may become impossible to get a really sharply focused picture except by accident, or when the lens is used at such small apertures that the depth of focus makes up for the error inherent in the system.

Such a camera may be suitable for a snapshotter's bright daylight color slides, but its inadequacies will show up quickly in a big print. I have encountered this fault in some very fancy, expensive cameras.

It is my belief that such inaccuracies are often to blame for what seems to be poor lens performance. The best  
(Continued on page 46)



Thru Konica's viewfinder, you see exactly what the film sees, parallax-free. You see the actual depth-of-field, plus the assuring needle indicator that tells you exposure is "on-the-head". You sight and focus through the f2 V-Hexanon lens, just as your film does; no possible error! Zoom range, 12mm-32mm, converts down to 6mm, or up to 50mm, with accessory converters...and you see results as you shoot.



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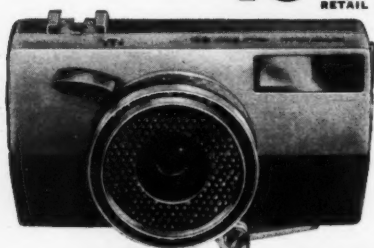


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# the **LARGE CAMERA**

by **ANDREAS FEININGER**

Staff Photographer for *Life Magazine*

**Enlarging your negatives, Part II:**  
**Some important milestones on the road to perfection.**

180mm f/5.6, 5 x 7, \$109.50  
210mm f/5.6, 5 x 7, \$134.50  
240mm f/5.6, 8 x 10, \$169.50  
300mm f/5.6, 8 x 10, \$269.50



However many precautions you take in your enlarging, they'll be wasted unless you start with the right lens. Contrary to the opinion of many photographers, there's quite a difference between a

good camera lens and a good enlarger lens. This difference is caused by several factors:

1. A camera lens is normally used to produce images in reduced scale, whereas an enlarger lens is nearly always used to produce images in enlarged scale.

2. A camera lens is corrected for its best performance when focused at infinity, whereas an enlarger lens is corrected for close-up performance.

3. It does not matter if a camera lens has a slightly curved field since it is very seldom focused on a flat subject; and when focused on a three-dimensional subject involving depth and stopped down accordingly, a slight degree of curvature of field is no disadvantage. In contrast, an enlarger lens must always produce a flat image (on paper) of a flat subject (the negative) and hence has to have as flat a field as possible.

Because of all this, if prints of highest quality in regard to sharpness and definition are required, the enlargements must be made with a specially computed enlarger lens and *not* with "any old lens" that happens to be sharp. Personally, I highly recommend the following lenses which are specifically computed for use in large-negative enlargers:

Kodak Enlarging Ektar Lens  
90mm f/4.5, 2 1/4 x 3 1/4, \$75  
Kodak Enlarging Ektanon Lenses  
5 1/2-in. f/4.5, 3 1/4 x 4 1/4, \$65  
6 3/4-in. f/4.5, 4 x 5, \$75  
7 1/2-in. f/4.5, 5 x 7, \$105  
10-in. f/4.5, 8 x 10, \$170  
10-in. f/8, 8 x 10, \$150  
Schneider Componon Enlarging Lenses  
105mm f/5.6, 2 1/4 x 3 1/4, \$69.50  
135mm f/5.6, 4 x 5, \$74.50  
150mm f/5.6, 4 x 5, \$89.50

In the course of darkroom practice, every photographer acquires certain habits, likes, and dislikes—experiences which can be useful to others. Here are some points from my own experience.

One of the advantages of the large format is that it permits a photographer to make enlargements of only part of a negative, without reaching enlargement scales that in a smaller negative would bring out the film grain and decrease definition beyond the point of acceptability. However, in such cases, good results can only be expected if the negative is properly masked, i.e. if the areas that should not appear in the print are covered with an opaque paper mask. Otherwise, light transmitted by these areas might cause halation and decrease of contrast in the print. Personally, I cut my masks from the black paper that interleaves 4 x 5 color sheet films and hence fits exactly my 4 x 5 negative glass pressure plates.

### Record your darkroom data

Every time I make a print, immediately after finishing the exposure and before submerging it in the developer, I write with a soft pencil on its back technical data pertaining to paper grade, enlarger lens-opening, and exposure time. For example: 2-f/16-4 sec. I also note in detail any dodging or holding back involved. This is a big help if I later wish to make another print, either duplicating or improving the first one. Otherwise, I might forget some of this data, particularly if a lot of dodging was involved, and have to start anew every time I print this negative. One thing to beware of is to press so hard on the pencil that the writing prints through and cracks the surface of the paper emulsion. Putting the sensitized paper face down on a hard, perfectly smooth surface (a sheet of glass is ideal) minimizes this danger.

Two devices which I have always found extremely useful are a high-low switch and a tilting lens mount. The high-low switch permits a photographer temporarily to double the light output of his enlarger lamp, thus shortening the exposure time in cases where negatives are unusually dense or the scale of enlargement is particularly

(Continued on page 44)

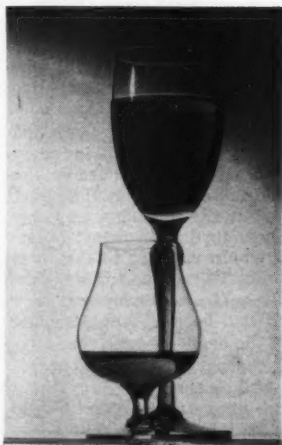
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You'll discover the exclusive study methods, the special mock-ups and 3 dimensional forms that teach the secrets of lighting and composition (many say just this one small part is well worth the price of the entire

course). You'll learn about the free undeveloped (but exposed) negatives that you'll use for your darkroom experiments. You'll read about all the other practice devices and materials you'll get...including additional negatives, positives, too...the special charts and easy diagrams, the fully illustrated and crystal clear lesson texts and more.

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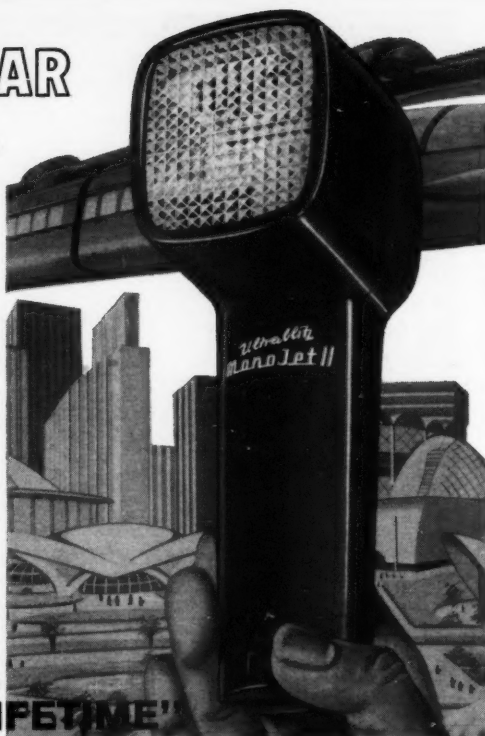


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**MODERN COLOR**

(Continued from page 32)

entirely new one. In the larger sizes it might be more economical to equip the screen with new fabric. The maker of your screen will be glad to quote prices. Remember to tell him the name and model number.

The following screen makers will be glad to send literature and data on the products they make: Aurora Industries, Inc., P.O. Box 6905, Chicago 80, Ill.; Bodde Screen and Projector Co., P.O. Box 711, San Fernando, Calif.; Brumberger Sales Corp., 34-34th St., Brooklyn 32, N.Y.; Da-Lite Screen Co., Inc., Box 192, Warsaw, Ind.; Knox Mfg. Co., 9715 Soreng Ave., Schiller Park, Ill.; Raven Screen Corp., 124 E. 124 St., New York 35, N.Y.; Radiant Mfg. Corp., 8220 N. Austin Ave., Morton Grove, Ill.; Schultz Mfg. Co., 262-272 Johnston Ave., Jersey City 4, N.J.

Highly recommended reading is *Mounting, Projecting and Storing Slides* by Norman Rothschild and George Wright. This Universal Photo Book is available for \$1.95 from your dealer or from Amphoto, 33 W. 60 St., New York 23, N.Y.—THE END

**THE LARGE CAMERA**

(Continued from page 42)

high. And a tilting lens mount makes it possible to correct in the print perspective distortion of the negative without stopping down too far.

Another useful thing to have around is a small jar of Vaseline. It is handy in case a negative is scratched on the film base side. Just rub a small amount of Vaseline into the scratches and they will not show up in the print; otherwise, they would register in the form of white lines. To remove the Vaseline after printing (to keep your negative files clean, not because the Vaseline would hurt the negative) rub the negative lightly with a cotton swab moistened with film cleaner.

Two more gadgets I wouldn't like to be without are a foot switch that works on both safelight and enlarger light in such a way that when one is on, the other one is off; and a focusing magnifier which, by focusing on the negative grain, enables me to make sure that every one of my prints is really sharp.—THE END

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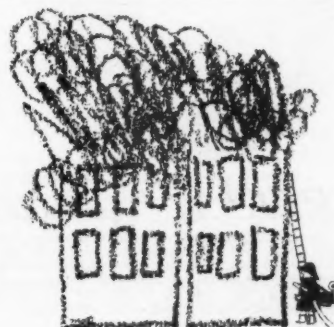


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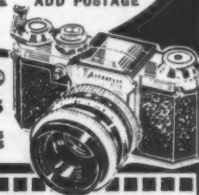
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## BEHIND THE SCENES

(Continued from page 38)

terial replied to MODERN's query that they thought coating film with the emulsion was possible but difficult.

Once the film appears, other applications will be possible—among them, making negatives from color transparencies and from Polaroid prints.

Will Rollaprint have any competitors? This depends on whether or not the process and materials are patentable and to what extent. Since the office copying machines made by other concerns do make contact prints and use somewhat the same system, it seems reasonable that the field will indeed offer some hot competition.

Come to think of it, doesn't it seem odd that in this atomic age with all its electronic, transistorized conveniences we must still sloop through three trays and an extended water bath in virtual darkness in order to get a print? And just think of the nonsense to turn out a color enlargement!

Come now gentlemen of Rollaprint, Kodak, Ansco, Dupont, let's spend a little of that automatic, electric eye time devising needed short cuts on the creative end of photography.—H.K.

## 35MM

(Continued from page 40)

lens cannot function properly in such circumstances. Fortunately, this type of focusing error is not difficult to isolate and can be corrected by a good repairman.

### And the rangefinder, too

A more serious situation is an inaccurate prismatic rangefinder. The commonest from of this device consists of two small plastic prisms molded into or otherwise attached to the central portion of the viewing screen.

Such rangefinders can be extremely accurate and useful. However, they also can be inaccurately made and placed, in which event they become as misleading as an improperly located ground glass. This is also the type of defect which may be masked in ordinary snapshooting, but will become apparent when you need exact focus. Such a malfunction can be detected and the offending viewing-screen/rangefinder assembly can be replaced.

In previous columns I have stressed the importance of having some idea of what are to be your photographic goals, and to be guided mainly by these in choosing a camera. This is a vital necessity for the SLR buyer.

The potentialities of the SLR type are enormous. But the range of picture taking abilities of sub-types varies widely. And when you get down to picking individual camera designs it is easy to buy an expensive, beautiful, well-made instrument that is totally unsuited to the type of picture taking you want to do.—THE END

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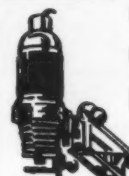


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Contaflex IIA F/1.5 Sonnar	219.95
Contaflex Super F/2.8	89.50
Exakta IIA F/2.8 Auto Biotar	29.95
Fujica F/2.8 35ML (New)	64.75
Kodak Signet 40 w/flash	16.95
Kodak Signet 80 New	199.00
Konietta	29.95
Leica M-3 (Body only)	345.50
Minox 35	85.50
Nikon SP (Body)	82.50
with f/1.1 Nikkor Lens (Used)	82.50
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Konica S F/1.8 (new)	99.50
Konica F Reflex (new)	82.50
Retina IIS F/2.8	139.50
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BRAND NEW! F/1.8 lens zooms from 15mm to 25mm for wide range picture sizes. 400-ft. reel capacity. Blower cooled. Shuts still, forward, reverse. Includes Argus Splicer.  
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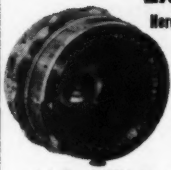
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FREE—Wide Angle Attachment w/case with each Zoom lens.

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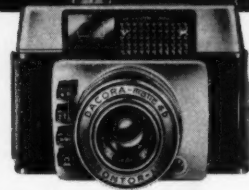
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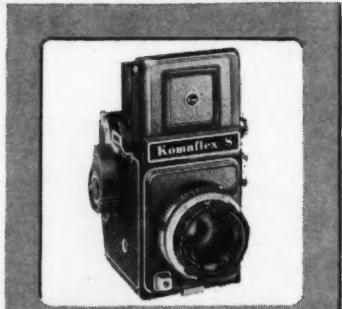
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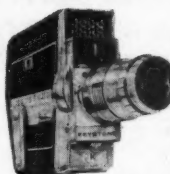
**NEW PRODUCTS**

(Continued from page 16)

include framing adjustment, frame-punching marker, and frame-by-frame setting. A dry splicer and supply of splicing tapes is included with the Edipet. Price of the Edipet is under \$30. Write:

U. S. PHOTO SUPPLY CO.  
 6478 SLIGO MILL RD., WASHINGTON 12, D. C.

**Push-Button Zoom on Keystone**



On the Keystone K-10 electric eye 8mm movie camera, you push a button to zoom the f/1.8 lens automatically from 9 to 27mm. A separate viewfinder is geared to zoom with the lens. The camera has optional manual exposure control, as well as an alternate manual zoom control, which allows each scene to be framed before shooting. Focusing on the K-10 is manual. An exposure indicator in the viewfinder warns when light is insufficient. Other features are: focuses down to 6 ft.; built-in Type A filter; film speed settings from E.I. 10 to 40; automatic footage indicator; 3-way trigger—regular, lock, and single-frame run; folding crank wind. The Keystone K-10 sells for \$179.95. Write:

KEYSTONE CAMERA CO., INC.  
 151 HALLET SQUARE, BOSTON 24, MASS.

**IN NEXT MONTH'S  
MODERN**

An agonizing reappraisal of how to test a lens.

**One-Piece Electronic Flash**

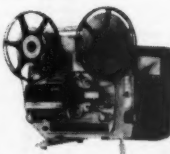


The one-piece Bogen-Classic electronic flash unit is 6 1/4 in. high and weighs 20 oz. (including batteries). Powered by a sealed-in lifetime nickel-cadmium battery, it has a transistorized monitor circuit providing a 40-watt-second output. The unit also operates on

AC. Additional features include: 65° angle of coverage, 1/1000-sec. flash duration, 8- to 10-sec. recycling time, 6000K color temperature, automatic battery recharger, removable PC cord, and direct-reading exposure calculator dial on the back of the lamp head housing. Recommended guide number for Kodachrome is 28 to 32. Bogen-Classic costs \$59.95. Write:

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 28 SCHOOL ST., YONKERS, N. Y.

**AZ-718 Has Automatic Threading**



Revere's AZ-718 zoom movie projector features automatic threading from feed sprocket to takeup reel. To start the action, you place film on the takeup reel, press a button.

The Wollensak f/1.5 lens zooms from 15 to 25mm. A device on the projector

(Continued on page 118)

# TOO HOT TO HANDLE

I've become interested in darkroom work. After looking over available enlargers I find that the Testrite enlargers are priced very reasonably. Since price is a determining factor with me, would the Testrite be a good buy?—S. Duncan, East Lansing, Mich.

We have found the Testrite enlargers to be sturdy and reliable, although lacking some features found on more expensive units. We think you would be pleased with the enlargements made on the unit. However, the strongest, and the weakest, part of any enlarger is its lens. Get a good one. The best made machine will produce bad prints if used in conjunction with a bad lens.

I am shopping for a versatile camera that can be used for wildlife, documentary and portraiture. I believe the Optika IIa might be a good choice. Are the Luminon and Actinar lenses available for this camera of first quality? Is there vibration in the operation of the camera during exposure that could blur the image?—R. Van Hanson, Raleigh, N. C.

Our tests of the 105mm f/3.5 Musashino Koki Luminant lens in preset mount for the Optika indicated that it is sharp from corner to corner wide open. Other lenses were not tested. We have found very little vibration in the camera mechanism which might blur the image.

Are the lenses for the Nikon single-lens reflex camera made with rare-earth lens elements?—P. G. Meredith, Auckland, New Zealand.

With the constant talk about rare-earth lens elements one almost believes that the first good lens came only with their discovery. Not so. Good lenses have been made with and without rare-earth elements. Usually, however, rare-earth glass does make it possible to use a less abrupt curvature in some of the lens elements—making it easier to design a good lens. Yes, Nikkor lenses for the Nikon reflex do use rare-earth glass.

I recently saw an Aires Viscount on sale for \$41. After reading Mr. Wolbarst's column ("35mm") for December 1960, I came to the conclusion that

this was a good buy. But numerous dealers have told me the camera is second rate. What is the true story on the Viscount?—R. W. Meals, Jacksonville, Ark.

Mr. Wolbarst didn't actually specify any particular camera in his column—rather he laid down some sound rules for buying a 35mm. However, we still think the Aires Viscount is a good buy. Incidentally, a testing organization that we often disagree with agrees with us about the Viscount and lists it as a best buy. But no matter what camera you purchase, we suggest testing it according to the methods outlined in the December 1960 issue ("Where and How You Should Check a Used Camera").

How does the old 50mm f/2 Summar lens compare with the Xenon f/2 of the same period? Also, how would the Summar compare with the Elmar f/3.5 if both were stopped down to f/8?—Capt. E. R. Eckerle, Riverside, Calif.

At large apertures, an average 50mm f/2 Summar is inferior to an average Xenon f/2 of the same vintage. At f/8, however, the Elmar and the Summar will deliver about the same results.

I would like your opinion of the Komura wide-angle lenses for the Exakta VX. Also, are there any other lenses you would recommend for this camera?—C. A. Murdock, Brockville, Ontario.

You get what you pay for. While the Komura wide-angle lens for the Exakta VX will provide adequate results at small apertures for snapshot-sized prints, it's not, in our opinion, good enough for serious photography. The 35mm f/2.8 automatic Schneider Curtagon, the 35mm f/2.8 Steinheil Auto Quinaron, or the 35mm f/2.8 automatic Zeiss Flektagon would be better.

I've narrowed my choice of a 35mm single-lens reflex camera down to the Yashica Pentamatic, Minolta SR-1, or the Praktina FX with 58mm Biotar lens. Regardless of speed, which camera offers the best lens?—Capt. O. D. Steffey, Jr., New York, N. Y.

Simple question, but not so simple an answer. Given the Yashica Penta-

matic with the 55mm f/1.8 automatic Yashinon, the Minolta SR-1 with the 55mm f/2 Auto-Rokkor, and the Praktina FX with the 58mm f/2 Biotar, we would pick the Yashica with the automatic Yashinon. But if you could get the Minolta with the 55mm f/1.8 Auto-Rokkor or the Praktina with the 55mm f/1.9 Auto-Quinon you would have a lens in the same class as the automatic Yashinon.

My work requires that I use odd amounts of solution for developing Ektachrome 35mm film. Since the solutions made with the regular Kodak E-2 (improved type) usually go to waste because of oxidation, I'd like to prepare my own chemicals. I believe I have the required facilities. Could you give me the formulas?—R. T. Olsen, Jamaica, N. Y.

Kodak isn't telling anyone the formulas for the chemicals used in Ektachrome developing kits. However, the "British Journal Photographic Almanac" has published substitute formulas. We have no personal experience with the formulas so can't tell you if results will be identical to those with the regular Ektachrome developing kit. But if you like to experiment, the Almanac is available from Amphoto, 33 W. 60 St., New York 23, N. Y.

## IN NEXT MONTH'S MODERN

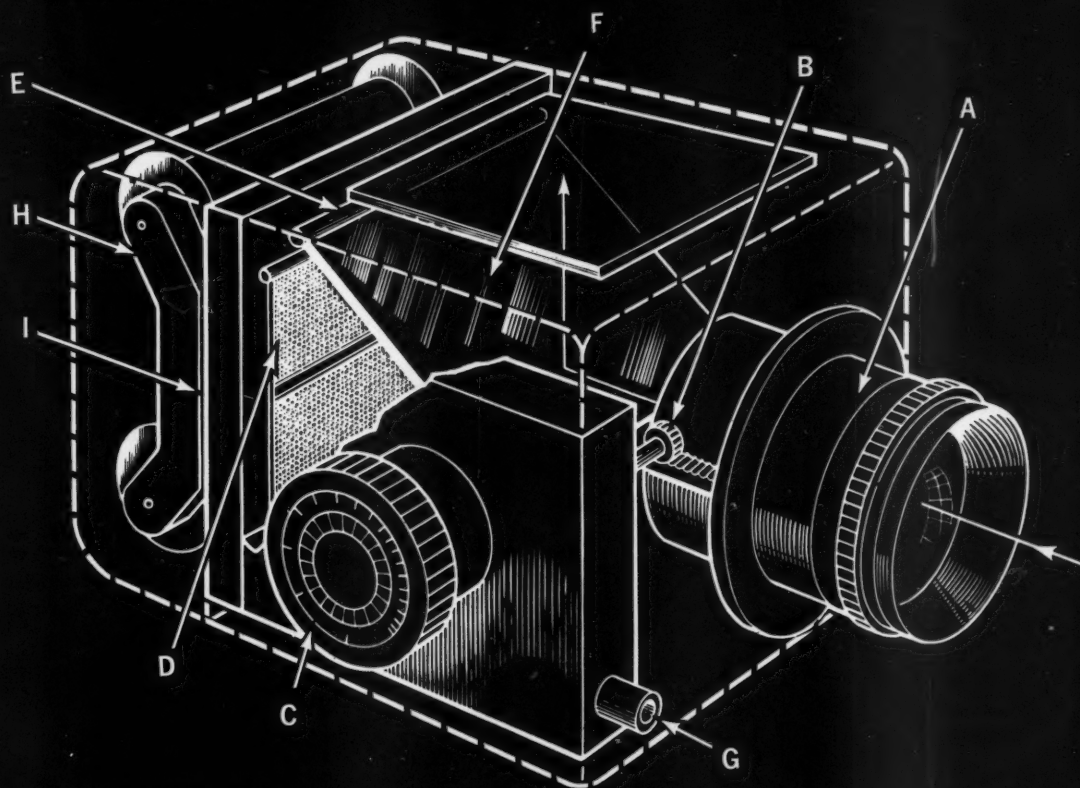
Ken Josephson, a young photographer who takes outstanding pictures with all kinds of cameras.

Kodak's developing kit for 35mm Ektachrome specifies only the number of 20-exposure rolls which can be developed—six, to be exact. Would it be incorrect to assume that only four 36-exposure rolls can be developed in the same quantity of solution? Also, it is possible to process more film than specified?—D. J. Maxwell, Baltimore, Md.

The figure of four 36-exposure rolls is approximately correct. Personal experience on the part of staff members indicates that two additional 20-exposure rolls can be processed in the chemicals furnished with the kit. But we feel the extra two rolls represent penny-wise, pound-foolish thinking. Solutions must not have been stored for any length of time and some loss of color saturation and a shift toward the warm end of the spectrum usually can be expected. We don't think the small savings gained by processing those two extra rolls are worth the risk of poor color slides.

Your July 1960 issue describes the Miranda Automex as having a split-image rangefinder. In the December

(Continued on page 112)

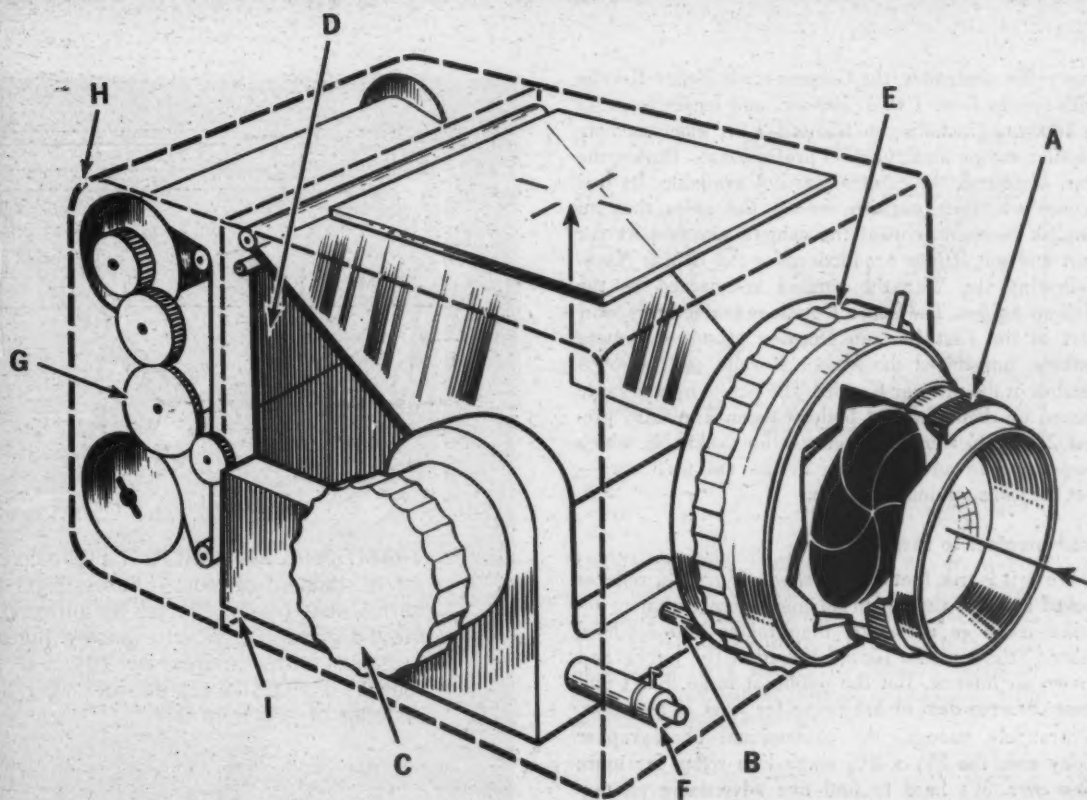


**BRONICA:** Interchangeable lenses, each containing a simple diaphragm control lever, are inserted in focusing tube (A). Focusing is accomplished by a gear drive (B) coupled to master control knob (C). When knob is pulled out slightly, focus drive is uncoupled and shutter mechanism (D) can be wound for next exposure. Special mirror drive (E) moves mirror (F) down to bottom of camera when exposure button (G) is pressed. Automatic diaphragm is controlled by simple lever (not shown) which moves diaphragm control lever on the lens.

Winding of shutter mechanism also drives film spool mechanism (H) and moves film to next exposure position. Special tensioning device in film chamber pulls film very flat when film winding is finished. Entire film chamber is removable at the parting line of camera back (I). Although the focal-plane shutter limits the speeds at which the camera can be synchronized for electronic flash and makes bulb synchronization more complicated than does a leaf shutter, the construction allows instant-return mirror, instant-reopening diaphragm,

# INSIDE STORY: THE 2 1/4 SINGLE- LENS REFLEXES

The peculiar saga of the camera beloved by serious advanced amateur and professional photographers, yet somewhat ignored by the photo public in general. Here, Bennett Sherman and Herbert Keppler analyze the reasons and dissect the cameras.



**HASSELBLAD 500C:** Interchangeable lenses complete with Synchro-Compur shutters (A) are inserted directly into the front of the camera body. Shutter is wound by rotary coupling (B) driven from the master control knob (C). Film blind (D) and mirror release (not shown) are also wound and set from the knob. Lens focusing is contained within lens shutter assembly and controlled by main focusing ring (E). When exposure button (F) is pressed, mirror moves upward, shutter closes, blind opens, and the shutter reopens and closes

for the actual exposure. Turning the shutter winding knob also moves the film to the next exposure position by means of a gear train (G) within the roll film chamber (H). Camera back can be removed by pushing catch at back top and separating from camera body at (I), thus permitting the use of interchangeable film backs. The leaf shutter within lens offers complete synchronization but limits types of lenses that can be fitted and complicates development of rapid-return mirror, instant-reopening diaphragm.

THE EBB AND FLOW of camera popularity holds as many mysteries as the sea. We are currently and have been for several years riding the 35mm waves in which the tiny (?) miniature (?) reigns supreme. The arguments in its favor—ease of handling, wide availability of color, inexpensive film, advanced camera features as against larger sized cameras—do not stand scrutiny. Today there are more and better larger sized color films. Film costs average out to be about equal with 35mm. And camera advances came after the popularity of 35mm cameras were established, not before.

What then has happened to a camera type which, prior to World War II, was fast rising to challenge the popularity of the  $2\frac{1}{4} \times 2\frac{1}{4}$  twin-lens reflex? We are of course speaking of the  $2\frac{1}{4} \times 2\frac{1}{4}$  single-lens reflex. Almost every argument put forward today for the opti-

cal and mechanical advantages of the 35mm single-lens reflex can be repeated for the  $2\frac{1}{4}$  single-lens reflex, only more so—focal-plane shutter, complete interchangeability of lenses without additional viewfinders, full-sized ground-glass focusing image. The concept of making an eye-level rather than a waist-level camera is purely a technicality which can be overcome with a snap from a production engineer's fingers.

Most important, the  $2\frac{1}{4} \times 2\frac{1}{4}$  single-lens reflex holds out the promise of a relatively compact (about half the size of a twin-lens camera) box plus a good size negative whose sharpness capabilities far exceed those of 35mm. Moreover, the square format eliminates the necessity for deciding whether the camera should be held vertically or horizontally.

Prior to World War II, the foremost  $2\frac{1}{4} \times 2\frac{1}{4}$  single-

lens reflex contender, the German-made Reflex Korelle with speeds from 1 to 1/500 sec. and lenses from 45 to 1000mm (including an 85mm f/1.8), was extremely popular among amateurs and professionals. During the war, of course, the camera was not available. Its loss caused so much anguish among the allies that an English company copied the camera almost part for part and put it into production for the British Navy. Following the War the camera re-emerged as the civilian Agiflex. The Reflex Korelle manufacturers, now part of the East German Dresden group of camera makers, introduced the Master Korelle, an improved version of the pre-war Korelle. The public by and large turned up their noses at both of them. The third pre-war  $2\frac{1}{4} \times 2\frac{1}{4}$  single-lens reflex—the Exakta 66, which reappeared in an interesting design (as we'll see)—met the same unkind reception.

### From neglect to respect

While it is true that these post-war  $2\frac{1}{4} \times 2\frac{1}{4}$  reflexes lacked some of the recent advances seen in 35mm reflexes—such as automatic diaphragms and eye-level prisms—these would have followed if the public had shown an interest. But the public at large didn't and these cameras died or are dying for want of attention.

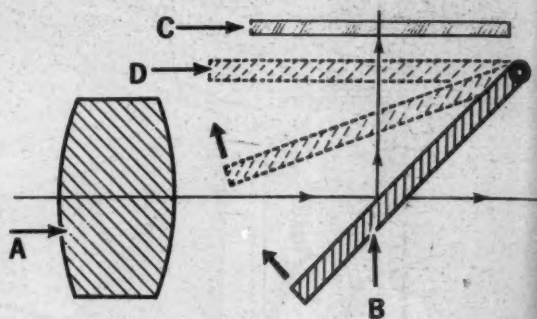
Strangely enough, the professional photographer today uses the  $2\frac{1}{4} \times 2\frac{1}{4}$  single-lens reflex far more than ever. It's hard to find one advertising photographer who doesn't own a Hasselblad (which has been available for some time) or isn't seriously discussing the purchase of it or a Bronica (a relative newcomer). These two truly fantastic instruments occupy the super luxury class designed primarily for advanced amateurs and professionals. Below, in the capable, less costly and not so automatic class, are the Optika IIa, which is a  $2\frac{1}{4} \times 3\frac{1}{4}$  reflex of unusual features, and the Kalimar Reflex, a  $2\frac{1}{4} \times 2\frac{1}{4}$  reflex whose features closely parallel those of the fine old pre-World War II reflexes.

Since we're going to be talking at length about these four single-lens reflexes, what they offer and how they work, it might be advisable to list briefly the features and prices of each:

**Bronica:**  $2\frac{1}{4} \times 2\frac{1}{4}$  on 120, 75mm f/2.8 automatic instant-return diaphragm with rapid-return mirror; 10 to 1/1250 sec., FPX sync.; combined film and shutter wind with automatic film stop; focusing by turning knob on side of camera; interchangeable film magazines; depth-of-field preview button. \$489.50.

**Hasselblad:**  $2\frac{1}{4}$  square, or  $1\frac{5}{8} \times 2\frac{1}{4}$ , or  $1\frac{5}{8}$  square format with proper magazine; 80mm f/2.8 automatic diaphragm lens, reopens to full aperture when film is wound; between-lens leaf shutter, 1-1/500 sec., MX sync.; combined automatic film advance and shutter wind with automatic film stop; focusing by turning ring around lens mount. Each interchangeable lens has its own Compur Rapid MX shutter, automatic depth-of-field indicator. Interchangeable magazine roll film backs; interchangeable wind knobs; interchangeable viewing hoods. \$550.00.

**Kalimar:**  $2\frac{1}{4} \times 2\frac{1}{4}$  on 120, 80mm f/3.5 lens with pre-



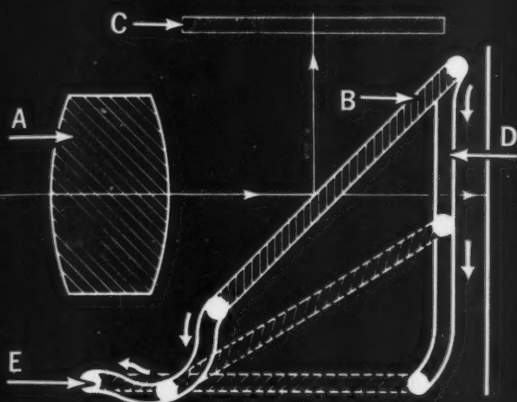
**TRADITIONAL APPROACH:** The "flip-up" mirror is standard in most reflexes. Light from normal lens (A) is reflected by mirror (B) to ground glass (C). When exposure button is pressed, mirror moves up (D) and light reaches film plane (E). Mirror swing limits distance of lens from film.

set diaphragm;  $\frac{1}{5}$  to 1/500 sec.; combined film advance and shutter wind with automatic film stop; focusing by turning ring around lens mount. \$119.50.

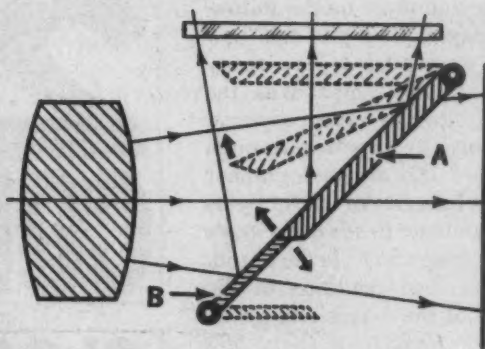
**Optika IIa:**  $1\frac{5}{8} \times 2\frac{1}{4}$  to  $2\frac{1}{4} \times 3\frac{1}{4}$  on 120 using various masks with interchangeable roll film backs; 135mm f/3.5 preset; 1/20 to 1/400 sec., MX sync.; separate film advance and shutter wind; focuses using  $2\frac{1}{2}$  in. bellows and knob on side of camera. \$229.50.

Let's first mark the many desirable items we would like to have in the modern automatic reflex camera. The following list is not necessarily in any order of importance. This depends upon the preferences of a particular camera user. Here is the list: 1. Full range of interchangeable or zoom lenses. 2. Interchangeable film chamber or back which can be removed and replaced at any time even though the roll is not finished. 3. A standard size film with sufficient number of exposures. 4. A quick-return mirror. 5. Swift, automatic film advance and shutter reset with one lever or knob. 6. Separate focusing. 7. Automatic diaphragm with a preview button or knob to help judge the depth of field. 8. Accurate focusing aid or magnifier. 9. Full flash synchronization. 10. Changeable film format permitting a smaller size picture with more shots on the same film. 11. A pentaprism or mirror arrangement for eye-level viewing. 12. A sportsfinder permitting observation of the subject action outside the camera field. 13. Compact and rugged construction.

There may be others, but these cover most of the popular requirements. How do today's contenders stack



**INGENIOUS ADVANCE:** "Slide-down" mirror of Bronica permits larger mirror, closer lenses. Light from lens (A) reaches mirror (B), is reflected to ground glass (C). When release is pressed, internal lever pulls back of mirror down track (D). Mirror front edge is guided down under rear of lens (E).



**ANOTHER IDEA:** Exakta 66 has flip-up mirror (A) shortened to clear the back of the standard and wide-angle lenses. Small secondary mirror (B) under main mirror reflects edge rays from long lenses to forward edge of ground glass. When release is pressed, little mirror moves out of way.

up? A study of the list of features of the Hasselblad, the Zenza Bronica, the Exakta 66, the Kalimar Reflex and the Optika reveals that in a varying degree all have some of the desirable items in our list. It would serve no purpose here to wade into the usual arguments of one camera's possible superiority over another. Instead let's examine the engineering and optical problems and see how well each overcomes them.

Constructional problems of the  $2\frac{1}{4} \times 2\frac{1}{4}$  single-lens reflex can be divided into two areas, optical and mechanical. Let's deal with the optical first. We won't go over the well-trodden ground concerning automatic, semi-automatic and preset diaphragms for the single-lens reflex. This information has been amply covered previously for 35mm cameras (see the February 1960 MODERN), and there is no practical difference between the problems here and in 35mm. However, the difficulties concerning focusing, mirror swing and lens design are most definitely more complicated in  $2\frac{1}{4} \times 2\frac{1}{4}$ . The reason is quite obvious. The format of the picture is square instead of rectangular. The interior mirror must be longer in relation to its width, and the lenses therefore must all sit farther from the film plane. In order to gain as much depth as possible in the interior of the camera, especially for the fitting of wide-angle lenses, various unusual mirror actions have been devised. If the mirror is slightly short the upper edge of the ground glass may darken, particularly when used with telephoto or long focal-length lenses. The Bronica and the Exakta 66 have adopted the most novel ap-

proaches (see drawings above and on opposite page).

In the Exakta 66 a short second mirror strip is hinged from the bottom of the camera body to reflect light to the upper edge of the ground glass (drawing, above right). When the shutter release is pressed, this mirror swings out of the way, as well as the main part of the mirror. Perfect alignment between this strip mirror and the main mirror is difficult if not impossible. This misalignment causes a slight but not serious image doubling in the upper part of the ground-glass view.

The Bronica mirror is extremely ingenious and represents a complete departure from the traditional up-swung thinking (drawing, above left). It is a complete mirror as large as is optically necessary. When the shutter release is pressed, the mirror is moved and guided down and forward to the bottom of the camera under the rear elements of the lens. The back or top edge of the mirror has pins which travel in an almost vertical track while the front or lower edge has pins which are guided forward and down. One might view with some scepticism the ability of this mechanism to return the mirror to viewing position immediately following exposure, but the mirror travel does seem to provide consistently sharp focusing. The advantage of such a system is immediately obvious. A 50mm wide-angle lens will fit this camera.

The Hasselblad, although quite radical in its mechanical operation, has a traditional spring-loaded rising mirror of one-piece construction which remains in the up position until the (Continued on page 88)

EXAMINE THE PHOTOGRAPH *opposite* and those on the following pages. Can you tell how they were made? How many are straight shots? Was the fiery, overall red *opposite* achieved by shooting through a filter? Did the photographer set up batteries of studio lights to illuminate *Beads and Purple Glass* (page 56)? Is the liquid, sharp-etched rendition of the edges of the leaves and petals in *Vase Reflections* (page 58) the result of retouching or of some darkroom trick? Though New York fashion and still life photographer Leonard Balish is thoroughly conversant with all artificial lighting techniques and with cameras from 35mm to 8 X 10, he actually took the photographs shown here by available light, on weekends at home or on vacation, with 2¼ Rolleiflexes and Hasselblads. Only one—the double print *Bird and Sun* (*opposite*)—involved a complicated technique; each of the others could have been taken on any transparency or negative color film using standard close-up devices and the simple shooting controls of selective focus and deliberate overexposure. If you examine Balish's photographs you will notice a painterly concept of lighting, a graphic concept of space and form. This is no accident, for he has painted since the age of 12 and worked commercially in both advertising and editorial art. Unlike many painters-turned-photographers, Balish does not misuse the photo process just to produce graphic designs. There are no extreme distortions of color through filters or developing; no destruction of line or form by throwing the image completely out of focus or by shooting through trick mirrors; no interference with the quality of the emulsion by shooting or printing through screens or acetate sheets. Although he uses technical controls to interpret or dramatize his subject, most of his pictures appear to be the result of straight photography. For example, *Bird and Sun* on the *opposite page* is first of all

# 2¼ COLOR

# CLOSE-UP DOUBLE PRINTING OVER EXPOSURE SELECTIVE FOCUS

a double print, made from different negatives taken at different times in different places. But we all have seen the gulls wheeling at the shore near sunset. That one should fly between camera and sun is not impossible, or even improbable. In addition, Balish altered the color balance in the sunset photograph. A print made as recommended for "normal" results contained much more blue, which he removed in his later prints by subtracting the yellow filter. But the resulting photograph seems true enough to life, for such fiery sunsets do occur in nature. Now, examine the picture *Vase Reflections* on page 58. Here too the effectiveness of the photograph was heightened by printing, for Balish gave less exposure than was indicated by the density of the Kodacolor negative, to increase high key. But if he had been working with a straight transparency film using the exposure technique described in the caption, page 59, he would have achieved the same high-key rendition of his subject. In the course of his work, Balish uses all of the available 2¼ color films: Anscochrome, Super Anscochrome, and Ektachrome in both Daylight and Tungsten Types, as well as

Kodacolor. But since he prefers to make prints, over which he can exercise more control than when working with reversal materials, he often has internegatives made from his transparencies (this service is available through Eastman Kodak and most custom color processors) and prints from these. To expand the scope of your own 2¼ shooting, study his photographs and read the captions on page 59 for the techniques and processes which made them.—P.C.

**Bird and Sun:** double print, sunset shot with Hasselblad 500C, 250mm f/5.6 Sonnar, Kodacolor exposed at 1/60, f/4; gull shot with Hasselblad 500C, 150mm f/4 Sonnar, Kodacolor film, 1/125 second at an aperture of f/8.





**Beads and Purple Glass:** Rolleiflex E, f/3.5 Planar, Rolleinar 2 and Rolleipar, Daylight Anscochrome exposed at f/4 and 1/125 second.

**Christmas Bird:** Hasselblad 500C, 80mm f/2.8 Planar lens, 120 Kodacolor film exposed for 3 sec. at an aperture of f/2.8.





**Vase Reflections (left):** Early one morning Balish saw vases of flowers stationed around the railing of the dining veranda of his Grenada hotel, remained after breakfast to photograph them. He exposed intentionally for this high-key effect, which he further exaggerated in printing. You must keep in mind when shooting back light that contrast is extreme and you cannot record both highlight and shadow detail on the film. You may expose for the background to silhouette your subject; you may expose for subject detail and burn out the background; and there are, of course, an infinite number of compromise choices between these extremes. Here, Balish metered light falling on flowers with a Norwood Brockway incident light meter. He bracketed exposure, shooting one stop under and one stop over that indicated by the meter. Of the three, shot at  $f/5.6$  and  $1/30$ ,  $1/15$  and  $1/8$  sec. respectively, Balish chose the negative made at  $1/15$  sec. to make the final print. Rolleiflex II E, Rolleinar 2 and Rolleipar.

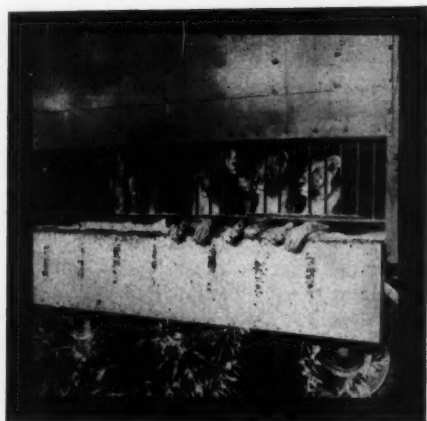
**Bird and Sun:** The technique for making multiple prints from two or more negatives is similar in color and black-and-white. First, Balish made a print of the sunset alone with the standard basic filter pack in order to decide which adjustments were needed. Then he made another print, subtracting the yellow filter to remove some of the blue and thus intensify the orange. When satisfied with the results, he put a plain sheet of 11 x 14 paper in the easel on which he traced the projected image of the sun and the horizon line. The second negative actually contained several birds, and required much more extreme enlargement. Leaving the tracing in the easel, Balish switched negatives, racked up the enlarger head and focused, using the tracing as a guide to the size and position of the bird. Once he made a satisfactory print, he was ready to start on the final superimposition. Balish replaced the bird negative with that of the sunset; placed the tracing back in the easel; racked down the enlarger and refocused until the sun and horizon appeared as on the tracing. Then, he exposed three sheets of Ektacolor paper, using the same filtration and exposure as he had in making the final single print of the sun. After exposing each sheet, Balish tore off a tiny piece of the upper right corner to insure replacing the paper right end up in the easel for the second exposure. He then proceeded as he had in making the tests: he replaced the tracing of the sunset in the easel, switched negatives, racked up the enlarger, refocused. Then he made the second exposure for the bird on each of the three sheets of the pre-exposed paper, and commenced development.

**Beads and Purple Glass:** This still life was set up at home on a table placed in front of a west window. To diffuse the direct light from the Sunday afternoon sun, Balish covered the window with a sheet of translucent acetate (available from a photographic dealer). After arranging and rearranging his props—glass, beads and plant—Balish used his standard technique to calculate exposure: holding a Norwood Brockway incident light meter at subject position, and pointing the cell at the camera. Then, placing the Rolleinar 2 and Rolleipar on the camera, he shot several rolls, bracketing exposure and changing angle. The only special problem you can encounter when shooting close-ups with a twin-lens camera is that of parallax: the difference in viewpoint between viewing and taking lenses. The close-up system for the Rolleiflex compensates for this neatly. Just attach one of the Rolleinars to the viewing and one to the taking lens. Then, bayonet the Rolleipar in place over the viewing lens, making sure the red dot is up. For a complete guide to shooting close-ups with twin-lens cameras, see the story on macrophotography, page 68.

**Christmas Bird:** There are two basic systems for making close-ups. One, to use a plus or magnifying lens in front of the camera's objective; the other, to use extension tubes or bellows to increase the lens-to-film distance. In making this photograph, Balish combined both methods, shooting with a plus 1 close-up lens as well as a 21mm extension tube. This approach is standard for Hasselblad users, but could be practiced equally successfully with most interchangeable lens cameras. For a complete coverage of this subject, and for a listing of close-up devices available for your camera, see the article on macrophotography which appears on page 68.

# CROP & SOMETIMES TILT

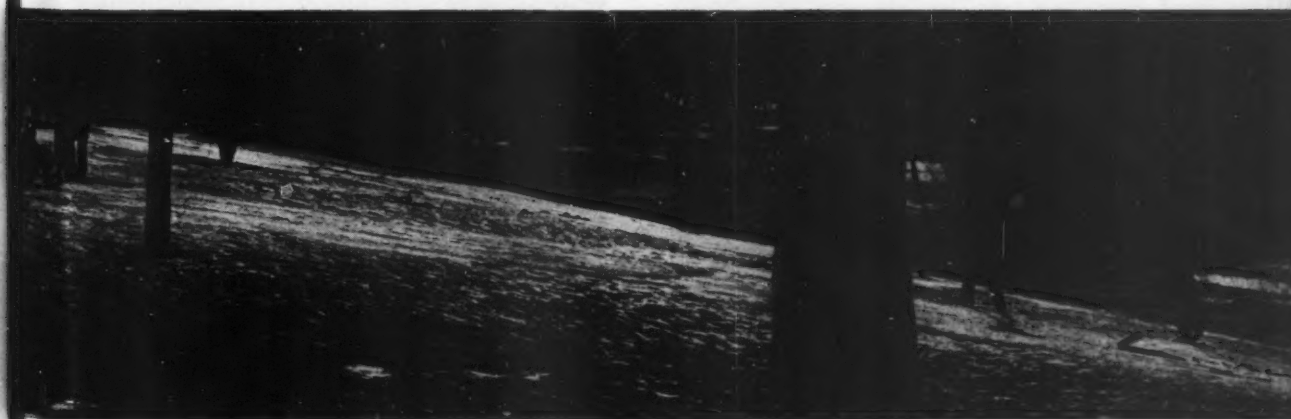
THINK FOR A MINUTE—just why is the twin-lens format square? Because that's the best shape for pictures? Or is it because of the viewing and focusing system? If the size were  $2\frac{1}{4} \times 1\frac{1}{2}$ , say, all of your photographs would be horizontals—unless, of course, you held the camera at a right angle to your body, an awkward operation indeed. Let's face it. There is no argument against cropping; the questions are only when and how much. These five examples represent five kinds of situations which demanded cropping. Before starting to crop your own  $2\frac{1}{4}$  pictures, study these and read the captions. One further suggestion: since it is difficult to visualize the best cropping, cut two L-shaped pieces of white paper and maneuver them over the contact. The variable sized rectangles they form enable you to compare the effect of different croppings.



**SO NEAR, AND YET . . .** One of the best reasons for standing back and cropping later is the possible danger to life and limb when shooting such subjects as *Felis Leo*. Jerry White planned cropping when he made this shot, had sufficient experience with pre-planned cropping to be able to see the picture *above* within the confused and cluttered scene he framed at *left*. In making the final print, White tilted the enlarging easel to straighten the converging lines of the top and bottom of the bars. This technique is particularly useful when enlarging negatives of buildings or interiors, where the camera may have tilted up or down and the walls appear to be leaning backward or forward. White made this photograph while shooting a story on the circus which he greeted when it was unloaded at the depot and stayed with from setting up, through performances, to the final departure. He worked with a Rolleiflex and old Plus-X film. Exposure here:  $1/50$ ,  $f/3.5$ .

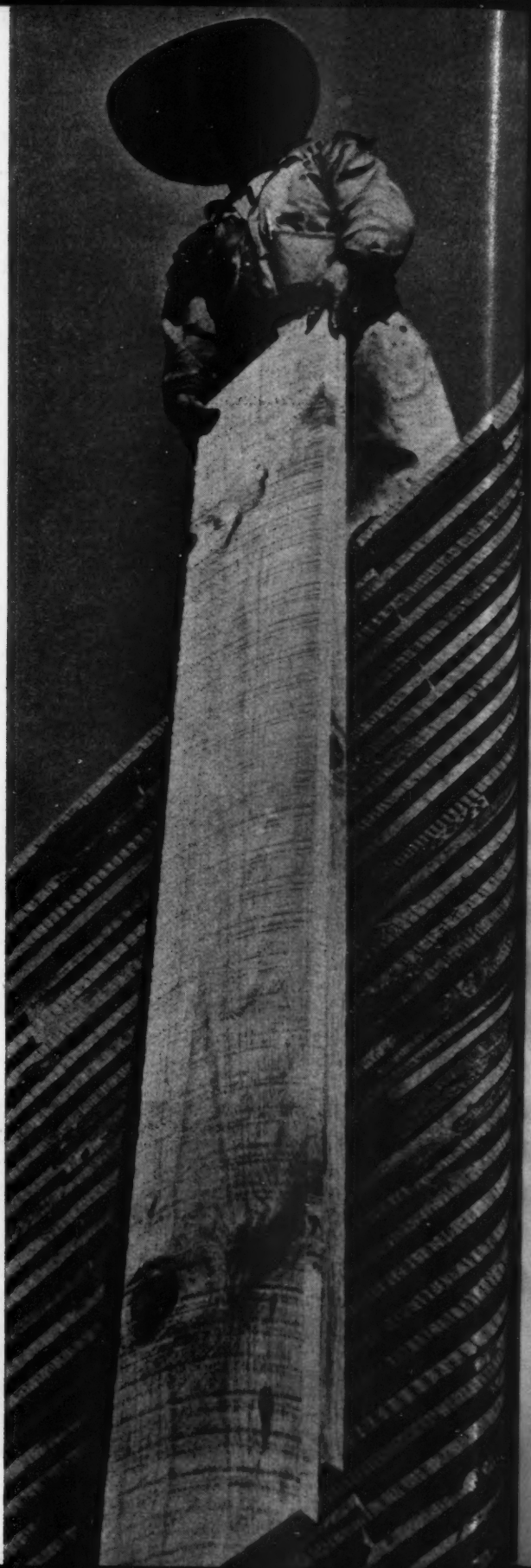


**WHEN THE TWAIN DON'T MEET:** On examining his contacts after an afternoon's shooting in New York's Central Park, Ernest Satow realized that the problem with this picture was that the top and bottom areas were in conflict; each attracted the viewer's eye, and killed the effect of the other. Satow's solution? Both simple and effective. He made separate prints from the separate sections, printing the tree at *left* on high-contrast paper to retain the white sky and darken detail in trunk and branches for silhouette, and making a dark, low-key print of the boys sliding on the hill. Satow dodged and used potassium ferricyanide on the hill as well to emphasize the sweeping line. Rolleiflex with f/3.5 Tessar, Plus-X Pan film rated at E.I. 200 and developed normally in D-76 diluted 1:1; 1/30 sec. and f/5.6.



CROP (cont.)

**THE SQUARE WITHIN:** No rule says cropping must be extreme. Here, Ed Clerk stood back in shooting to avoid the apparent distortion resulting from a too-close vantage point, cropped out a small close-to-square portion of the negative when making his final print. Rolleiflex, f/2.8 Xenotar, Verichrome Pan film, 1/250 sec. at f/2.8.

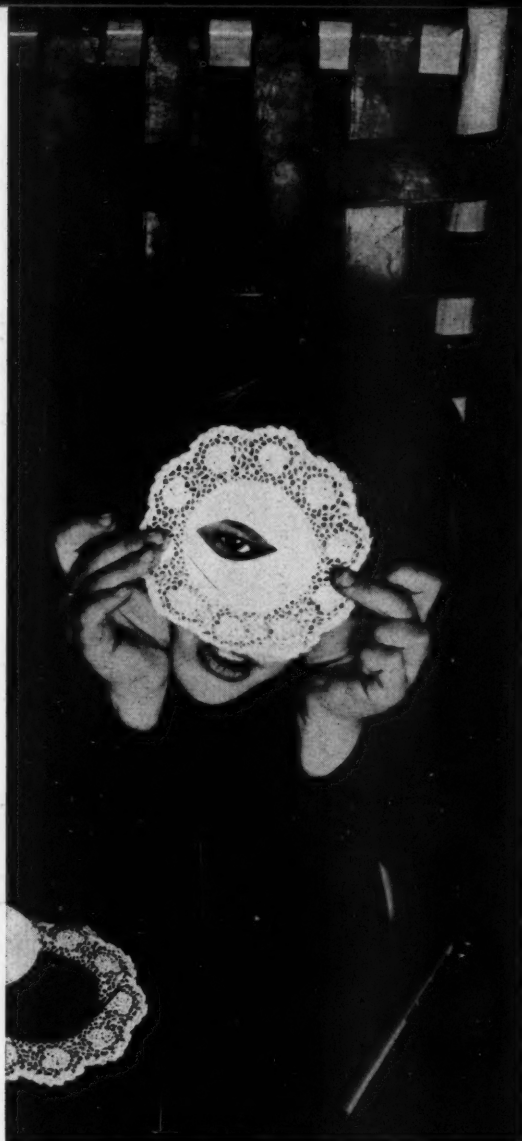




**FOLLOW THE LINE:** The subject itself in many scenes will dictate its own cropping. In general, whenever your picture contains a dominant line—vertical, horizontal, or at an angle—your best bet will be to use it as the basis for the shape of the print. Jerry White took this photograph while working on a story in a Mexican lumber camp. In making the print, he cropped close, and rotated the easel to straighten the line of the board. Slight convergence of sides of the board leads the viewer's eye to the lumberman at top. White's apparent overexposure of  $f/5.6$  and  $1/100$  on old Plus-X film was calculated to compensate for the extremely dark shadows encountered in the mountains. Rolleiflex.



**PHONY FISHEYE:** Although the cropping of the highway scene above is actually no more extreme than that of the lumberman *opposite page* or the snow landscape on *page 61*, the wide-angle effect is considerably more pronounced. Why? A combination of factors: The extreme convergence of the lines of the road and telephone poles simulates the wide-angle perspective; the minute size of the oncoming car—which was actually some distance from the camera—is reminiscent of the tiny images recorded by wide-angle objectives. Angelo Lomeo made this photograph in Nebraska while on a cross-country trip. When he spotted the car approaching across the prairie, he pulled over to the side, and stationed himself and his Rolleiflex dead center in the highway. Exposure on Plus-X Pan was  $1/30$  sec. at  $f/3.5$ .



# LOOK MA- NO FACE!

WHO SAYS you have to show the face when photographing children? Not, of course, that we're against the studio portrait or the Christmas card snapshot, for every picture has its purpose and must be judged accordingly. The photographs on these four pages were taken not for the mantel or for kind old Uncle Herbert or loving Auntie Pat, but for fun, for art, or for profit. The men who made them—Van Deren Coke, Kosti Ruohomaa, and S. C. Wilson—are all expert and professional twin-lens reflex users whose working techniques when shooting children are simple and based on the obvious. For the complete story of how each of these photographs was made, see the captions *below* and on the *following* pages.

**ARTFUL DODGE:** An adult can rarely contrive a pose a child will strike naturally. Although this photograph looks studied, it is actually as candid as the grab shot on the *opposite* page. While making valentines one winter afternoon, Van Deren Coke's daughter invented a game, began to peer around the room through holes cut in the paper doilies. Coke, ready and waiting with Rolleiflex in hand, shot Tri-X film at 1/25 sec. and f/11. The illumination: direct sunlight coming through a large window.

**ACCIDENTAL ECLIPSE:** Shoot lots of film and shoot it fast when working with children out-of-doors. Their actions and movements are abrupt; the best picture taking moment unpredictable. Van Deren Coke made a number of photographs of children and model airplanes, here exposed Tri-X at 1/250 sec. and f/11 in a Rolleiflex to capture the accidental—and momentary—eclipse of the girl's face by the plane just after she launched it.



LOOK MA (cont.)

**ADDED ATTRACTION:** Intrigued by the play of light and shade on this cast iron gate, Van Deren Coke moved in, framed it and the child behind, and focused. Only then did he notice the cause of the boy's intense concentration: a grasshopper, effectively camouflaged by the intricate grillwork. At a distance of about 4 ft., Coke shot with a Rolleiflex, Tri-X Pan film rated at E.I. 200 and exposed at 1/50 second and f/11. In making this photograph and those on the preceding pages, Coke did not take a light reading; instead he estimated exposure on the basis of his long experience of shooting by the light of the Florida sun.





**HIDDEN MOOD:** Kosti Ruohomaa spent the better part of a day photographing this child's first trip to the country for *Look* magazine. His shooting technique: not to pose, but to place the little girl in a variety of situations with photogenic potential. As she strolled across this meadow, Ruohomaa noticed the cow approaching her from behind, had exposure set at 1/100 sec. and f/16 and Rolleiflex pre-focused to capture the instant when country cow and city child contacted. Verichrome Pan film.



**BACKLIT STRETCH:** As part of an essay on childhood, S. C. Wilson directed his three-year-old son to climb a ladder while he stood below to photograph. Angling his Rolleiflex upwards, Wilson exposed for the bright overcast sky, intentionally under-exposing the child to make a silhouette. Rolleiflex, Tri-X film, 1/250 sec. at f/11.

# TWIN LENS MACRO

THE PROBLEM concerning close-ups with twin lens reflexes hasn't changed much over the years. Basically it's as follows: Because of the mechanical limitations of the focusing mechanisms, and the lack of lens interchangeability, you can't focus closer than 3 or  $3\frac{1}{2}$  ft. (except with the Mamiyaflex Professional C, of course, which has a long integral bellows). To creep closer to subjects, close-up lenses are necessary. Unfortunately, the twin-lens reflex's main feature, identical focal-length lenses for viewing and focusing, turns this efficient camera design into a distinct problem child when fitted with close-up lenses. The taking lens of the camera is generally situated 1  $\frac{11}{16}$  in. below the viewing lens (measured between lens centers). Thus the viewing lens sees a slightly different picture area from the taking lens. The discrepancy is the well-known parallax error of the twin-lens reflex. At normal focusing distances, between 10 ft. and infinity, the viewpoints are virtually identical. As the subject comes closer, however, you begin to see things you don't get and get things you don't see in the top and bottom edges of the picture area. In the best  $2\frac{1}{4} \times 2\frac{1}{4}$  cameras, special mechanical devices take care of this parallax error, shifting the ground-glass image to match the taking lens picture area as you focus. But these cameras are not designed to operate more closely. Simply putting a close-up lens over the taking and viewing lenses will not ready your camera completely. Simple parallax-compensating prisms must be either added to or incorporated into the viewing lens close-up attachment (see set on camera, *opposite*). These prisms bend the angle of view of the viewing lens downward so that at a given close distance the viewing lens will see the same picture area as the taking lens. While this situation works admirably for close-up lenses up to a +3, there are at present no parallax-correcting (Continued on page 70)

Camera sports close-up lenses with parallax-correcting prism over viewing lens (A). Parallax adjuster (B) raises camera proper distance for close-ups with +4 or stronger lenses. In array of lenses (C) note thickness of correcting prism.



# ...CLOSE-UPS MICRO

WE WERE GOING to begin: "Anyone can take pictures through a microscope using a twin-lens camera" but felt it was too trite though true. If you have a twin-lens reflex of any brand having a standard bayonet lens mount and own or plan to buy a microscope, photomicrography is quite feasible, relatively simple and rather inexpensive once you get past the purchase of the two pieces of extra material we feel are essential for operational ease—the Rolleiflex Micro-Prism and Micro-Tube. These two units cost (hold on to your hats) \$74.90. Is photomicrography worth it? Read on and make your own decision.

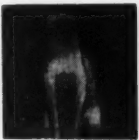
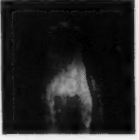
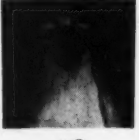
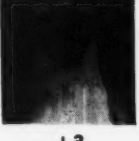




By photomicrography we mean taking pictures through a microscope. Just what you take—bacteria, onion skin or a millipede's toenails—depends on what you can focus through your microscope. If you see it, you can shoot it.

Let's start with the basic component, the microscope. All good microscope adapters for cameras are designed for a top quality, expensive microscope with standard size fittings. Most of the microscopes in use, however, range from \$5 toys through the \$10, \$15, \$25 range to \$100 or so. The fittings are smaller and the adapters won't fit these microscopes. Few of us have the expensive microscopes, so MODERN adapted the Rollei units to a \$22.95 (full list price) Selsi microscope, gave it to Morris H. Jaffe who had never owned a microscope before and told him how to use it. He came back not only with good black-and-white pictures but color as well. True, the overall sharpness of the microphotographs was below those made by a first-class instrument (sharpness in photomicrography depends largely on the microscope eyepiece and objective quality), but the pictures were certainly acceptable.

Here's how you take pictures through a microscope in the simplest manner possible using the Rollei equipment. The (Continued on page 71)

Camera bayonets to Rollei Micro-Prism (A) which has beam-splitting prism directing viewing and focusing image to eyepiece. Prism unit bayonets to Micro-Tube (B) which holds microscope barrel. Microscope is of "within your means" variety.



 NORMAL	WHICH CLOSE-UP LENS?		
	Camera Focusing Scale	Subject Distance in Inches	Area Covered in Inches
 +1	Inf.	38 $\frac{3}{4}$	30 x 30
	50	37	28 x 28
	25	34 $\frac{3}{4}$	26 $\frac{1}{2}$ x 26 $\frac{1}{2}$
	15	32 $\frac{3}{4}$	24 $\frac{1}{4}$ x 24 $\frac{1}{4}$
	10	29 $\frac{3}{4}$	22 x 22
	8	27 $\frac{3}{4}$	20 $\frac{1}{2}$ x 20 $\frac{1}{2}$
	6	25 $\frac{1}{2}$	18 $\frac{3}{8}$ x 18 $\frac{3}{8}$
	5	23 $\frac{3}{4}$	17 $\frac{1}{8}$ x 17 $\frac{1}{8}$
	4	21 $\frac{3}{4}$	15 $\frac{3}{8}$ x 15 $\frac{3}{8}$
	3 $\frac{1}{2}$	20 $\frac{3}{4}$	14 $\frac{3}{8}$ x 14 $\frac{3}{8}$
 +2	Inf.	19 $\frac{1}{2}$	14 $\frac{3}{4}$ x 14 $\frac{3}{4}$
	50	19 $\frac{1}{8}$	14 $\frac{3}{8}$ x 14 $\frac{3}{8}$
	25	18 $\frac{1}{2}$	13 $\frac{3}{8}$ x 13 $\frac{3}{8}$
	15	17 $\frac{3}{4}$	13 $\frac{1}{8}$ x 13 $\frac{1}{8}$
	10	16 $\frac{3}{4}$	12 $\frac{1}{2}$ x 12 $\frac{1}{2}$
	8	16 $\frac{3}{8}$	12 x 12
	6	15 $\frac{1}{2}$	11 $\frac{1}{4}$ x 11 $\frac{1}{4}$
	5	14 $\frac{3}{4}$	10 $\frac{3}{4}$ x 10 $\frac{3}{4}$
	4	14	10 x 10
	3 $\frac{1}{2}$	13 $\frac{3}{4}$	8 $\frac{3}{8}$ x 8 $\frac{3}{8}$
 +3	Inf.	13	9 $\frac{7}{8}$ x 9 $\frac{7}{8}$
	50	12 $\frac{7}{8}$	9 $\frac{5}{8}$ x 9 $\frac{5}{8}$
	25	12 $\frac{1}{2}$	9 $\frac{3}{8}$ x 9 $\frac{3}{8}$
	15	12 $\frac{1}{4}$	9 $\frac{1}{8}$ x 9 $\frac{1}{8}$
	10	11 $\frac{7}{8}$	8 $\frac{3}{4}$ x 8 $\frac{3}{4}$
	8	11 $\frac{1}{2}$	8 $\frac{3}{8}$ x 8 $\frac{3}{8}$
	6	11 $\frac{1}{8}$	8 x 8
	5	10 $\frac{3}{4}$	7 $\frac{3}{4}$ x 7 $\frac{3}{4}$
	4	10 $\frac{1}{8}$	7 $\frac{1}{2}$ x 7 $\frac{1}{2}$
	3 $\frac{1}{2}$	10	7 x 7
 +4	Inf.	9 $\frac{7}{8}$	7 $\frac{3}{8}$ x 7 $\frac{3}{8}$
	3 $\frac{1}{2}$	8	5 $\frac{1}{2}$ x 5 $\frac{1}{2}$
 +5	Inf.	7 $\frac{7}{8}$	5 $\frac{7}{8}$ x 5 $\frac{7}{8}$
	3 $\frac{1}{2}$	6 $\frac{1}{2}$	4 $\frac{1}{2}$ x 4 $\frac{1}{2}$
 +6	Inf.	6 $\frac{1}{2}$	4 $\frac{7}{8}$ x 4 $\frac{7}{8}$
	3 $\frac{1}{2}$	5 $\frac{7}{8}$	3 $\frac{7}{8}$ x 3 $\frac{7}{8}$
 +10	Inf.	4"	2 $\frac{3}{4}$ x 2 $\frac{3}{4}$
	4"	3 $\frac{3}{4}$	2 $\frac{1}{2}$ x 2 $\frac{1}{2}$

prisms for lenses beyond that strength. The table at left indicates precisely how close you can approach with +3 lenses and what area will be covered by them with the standard 75mm lenses used on most 2 $\frac{1}{4}$  x 2 $\frac{1}{4}$  cameras. However, you can make closer pictures with the aid of stronger close-up lenses and a parallax corrector such as the Accura Parallax Adjuster (photograph on page 68). You will, unfortunately, be limited to static subjects since you focus with the close-up lens over the viewing lens, then extend the adjuster to bring the taking lens into the same position, then transfer the close-up lens to the taking lens for the actual shot. With an adjuster and the +10 lens you can produce an image 8/10 life-size on the film.

Close-up lenses are not all beer and skittles, however. They are undeniably inferior to extension tubes and bellows in terms of definition and they do alter the focal length of your camera lens. As you increase the strength of the close-up lens, definition definitely does deteriorate. However, if you have a good lens on your camera, and stop down to its approximate critical point of definition (about f/5.6), you should be able to get quite satisfactory results (the equivalent of a good 14 x 14 print) even when using a +10 lens.

How much focal length will your lens lose? With a +1 on a 75mm lens the length decreases to about 70mm, which isn't much of a drop. With a +2 the length becomes 65mm; with a +3 it's 61mm, and with a +10 about 43mm. At close distances, these effectively shorter focal-length lenses may produce apparent perspective distortion in three-dimensional objects—the closest part of a subject will appear far too large in relation to the parts farther from the lens. For copying flat-surface subjects, of course, this problem does not exist. But with the stronger close-up lenses edge sharpness may fall-off intolerably.—H.K.

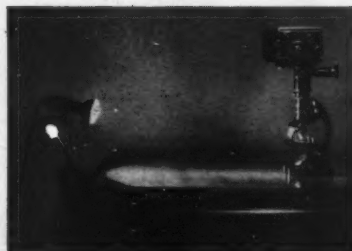
*Editor's note: Table at left is reprinted partly from Facts and Data about Closeups. For a copy, send 5¢ in stamps to Spiratone Inc., 135-06 Northern Blvd., Flushing 54, N. Y.*



Here are actual size prints made on Panatomic-X with Rolleiflex, Micro-Prism, Micro-Tube and inexpensive microscope. Exposure for 100X magnification was 1/30 sec. Photographs are tissue-thin sections of a corn stem and a hamster.



Rollei Micro-Tube needs plastic collar to tighten on non-standard microscope. Cut to size with blade.



Sylvania R-32 flood provides good light, is balanced for Tungsten Super Anscochrome. Setup is just this simple.

Micro-Tube which holds the Micro-Prism on the microscope has too large a diameter for most inexpensive microscopes. To alter it, cut a small internal collar from plastic tubing available at many hardware stores (see picture *left*) and inset within the tube. You can then tighten the tube's set screw and fasten the tube on the microscope. Once the tube is in place, you bayonet the Micro-Prism to it. The Micro-Prism is a partially silvered mirror beam-splitter which reflects light from the microscope to a separate eyepiece. By looking through the eyepiece, you can study the focus and composition of your subject even when you have the camera mounted on the unit.

Once the microscope adapter is in place as shown on page 69, keep the microscope stand vertical or the weight of the camera, acting as a lever, will cause the unit to tumble over. Now work the focusing control of the microscope and check whether the added weight doesn't cause focus slippage. If this occurs, find the

small screw which tightens the focusing mechanism and adjust it.

Set up your lighting as shown *below left*, using an R-32 Sylvania 3200K, 375-watt flood 3 ft. from the substage microscope mirror. Your camera lens must be kept wide open and focused on infinity. With 10X eyepiece and 10X objective (total magnification 100X), Morris Jaffe made a series of bracketed exposures on Kodak Panatomic-X film. After developing the film normally, according to manufacturer's directions, he found an exposure of 1/30 sec. was correct. The R-32 3200K Sylvania flood with built-in reflector is ideal for Super Anscochrome, Tungsten Type. Bracketed exposures of 1/30, 1/60 and 1/125 sec. were all acceptable though different in density. Until you are familiar with your own equipment, bracketed exposures are almost a necessity.

For more complicated but less expensive photomicrography techniques, read Kodak's *Photography through the Microscope*, 75c from most photo dealers.—H.K.

# TITLING: LEARN THE BASIC STEPS

A LARGE GROUP of amateurs who take infinite pains with exposure and shooting keep their processed movie footage on unedited and untitled 50-ft. projection reels.

There may be as many as 10 or 15 reels that relate to each other—but usually they get scattered amongst a lot of other miscellaneous little reels. A home showing usually involves starting with one reel on a particular subject, projecting another that has nothing to do with it, and much later accidentally getting back to a reel shot at the same place as the first.

It's more satisfying for both the amateur and his audience if he edits all that footage into a movie that fits on one reel, and adds a title.

You may have steered clear of titling because the equipment appears deceptively intricate. You can make simple, straightforward titles with a camera, tripod, some letters, a plain background, and two separate photoflood units or even a barlight.

A regular titling stand which can produce elaborate titles quite easily is really an uncomplicated piece of equipment that holds camera and title in a fixed relationship. Once focusing and framing are set, you need not readjust them during the working period.

An examination of a few titling outfits at your photo store will reveal the way a titler works and which one will fit into your budget. A titling set can be as inexpensive as \$5 or \$10 or run into hundreds of dollars.

Even the costliest set won't assure you of good titles unless you understand framing, focusing, lighting, and exposure. These are basic to all titling. For more elaborate titles you'll want to add knowledge of animation, zooming, and superimposition of titles on a photographic background. We'll discuss these later.

**Framing:** Basically, the problem is to center the lens so that it covers only the area of the title background—not miscellaneous objects at the sides or top. If you have a through-the-lens focusing camera there's no problem. But with cameras that have separate viewfinders, at short camera-to-subject distances there is a





difference in the area covered by the lens and what you see in the finder. Here's what to do if you shoot titles with the camera mounted on a tripod as shown in photo *top rt.*, page 74. If your camera has parallax correction marks in the finder, use them. If not, you may want to acquire an Elgeet Cine-Flex. The Cine-Flex mounts on the front of your lens and provides an image of the exact area covered by the lens.

On a regular titler, the camera may be aligned as shown in photo *top left*, page 74. A clear plastic sheet scored with the outline of the title area and a circle in its center is placed in the titler frame. Then, the camera is moved forward until the lens barrel touches the sheet. When the circle and the lens are aligned, your camera is centered. Other titlers employ a light that projects a rectangular beam of the same area as the titler. Some use pointers. Another type employs a rackover. First, the title is lined up in the viewfinder. Then, the rackover is moved to place the lens in exactly the same position previously occupied by the finder.

**Focusing:** With your camera mounted on a tripod, use a tape measure to determine the exact distance from title. Check your lens barrel to see if the distance must be measured from the lens front or the film plane.

Many 8 and 16mm cameras will focus as close as one foot or less from the cameras. If your lens will not focus as close as that or if it is a fixed-focus type, close-up lenses in various strengths mounted on your camera lens will do the trick. Your dealer can supply you.

The same techniques apply to focusing when your camera is mounted on a regular titler. However, most titlers are equipped with close-up lenses.

**Lighting:** Flat, even lighting is most commonly used for titling. With tripods, lights can be positioned one on each side of the camera. Set them behind the camera and slightly above it. A barlight can be mounted on the tripod, with the arms adjusted to throw light evenly from either side and above the camera.

Most titlers have their own lighting units. But no matter what equipment you use to make titles, lighting can be varied. For example, using only one light from the side of the camera will cast shadows alongside the title letters, providing a three-dimensional effect.

**Exposure:** There's no substitute for determining exposure with a meter. Either a reflected type or incident meter will provide accurate information.

If you use a reflected meter, hold a gray card (your camera shop has them) in front of the title and read exposure from it. With an incident meter, hold the

**TITLING GRAB BAG:** All the devices in the illustration at the center of these two pages can be used for titling. They include Color-Titles (1), a letter set with re-usable adhesive backs that comes with various backgrounds; Chart Pak (2) and Art Type (3), rub-on lettering kits; Hernand letters (4), a three-dimensional set with special adhesive for re-use; Premier Mark II 8 and 16mm titler (5); Bolex 16mm titler (6); Elgeet 8mm titler (7); Sylvania Sun-Gun (8); Lowel-Lights (9); Bell & Howell slide projector (10); Quick-Set elevator tripod (11), and Elgeet Cine-Flex viewer (12).

# TITLING (cont.)

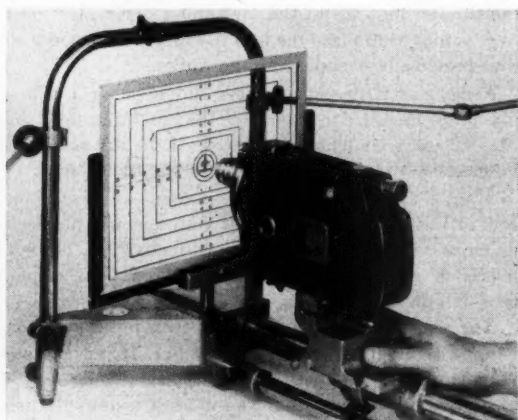
meter close to the title with the light-gathering sphere aimed at the direction of the lights.

Exposure readings must be repeated for every title you shoot—even if camera and title are always at the same focusing distance. Photofloods lose intensity as they grow older so readings may vary.

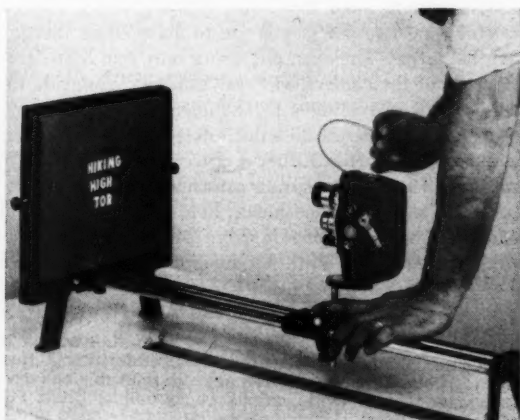
If your title is a simple-worded sentence on a plain background there's no reason to shoot at 16 or 24 fps. Use a slower frame rate with a slower shutter speed—8 fps for example. Then you'll be able to use the smallest possible f-number for greater depth of field.

So far we've discussed the straightforward title consisting of letters affixed to a contrasting background. Audience interest can be increased by various devices:

**Animation:** In the commonest type, the letters appear to jump into place one at a time. Here's how it's done:



**FRAMING WITH TITLER:** Line up lens barrel with scored circle on clear plastic sheet in Bolex title frame. Rectangles are marked with focusing distances for various titling sizes. Once lens is centered, move camera back to focusing distance indicated for correct field of view.



**Zooming with TITLER:** After minimum and maximum zoom positions are determined as outlined in text, start zoom by moving camera slightly and making single frame. Ruler acts as guide for frame-to-frame shift. Continue until zoom is completed. Adjust focus as you zoom.

First, select all the letters you need for your title.

Second, set your camera for single-frame shooting. If your camera has a cable release socket, use it. The result will be sharper because of less camera movement.

Third, light the background as described above.

Fourth, shoot either 16 single frames (if you use silent speeds for your films) or 24 single frames (sound speed) for 1 sec. of empty background on the screen.

Fifth, place the first letter of the title in place and shoot four single frames. Shooting that many frames gives your audience time to absorb the letter before the next one appears. Add another letter and shoot four more frames. Continue until the title is completely spelled out. As you can see in the illustration, *top right, opposite page*, we made no attempt to line up the letters. An odd layout is easier—and more interesting.



**FRAMING WITH TRIPOD:** Use viewfinder parallax marks to correct for difference in area lens covers and what you actually see in the finder. Or, Elgeet Cine-Flex mounted on front of lens, as above, provides reflex image of exact area that's covered by lens.



**Zooming with TRIPOD:** Same procedure is followed as with titler. However, invert elevator and place title on floor. Lower elevator and lock in place before shooting single frame. Plant tripod legs solidly on non-skid surface and use a cable release for each single frame.

**Zoom-titles:** If you have a zoom lens on your camera, zoom titles are relatively simple. Shoot them as you would almost any other subject. However, zoom as slowly as you can. If your lens won't focus close enough, see the February 1961 MODERN ("Ultra-close Zooms").

But you can even do a zoom title with a single focal-length lens that can be focused down to 1 ft. or less. It can be done with the least trouble on a titler that has a movable platform as in photo *below left, opp. page*. But you can make zoom titles with an elevator tripod.

With a titler, first position the platform with the camera mounted on it as far back as it will go. The title background should be big enough to dominate the viewfinder image. The title itself should take up only a small area in the center of the background.

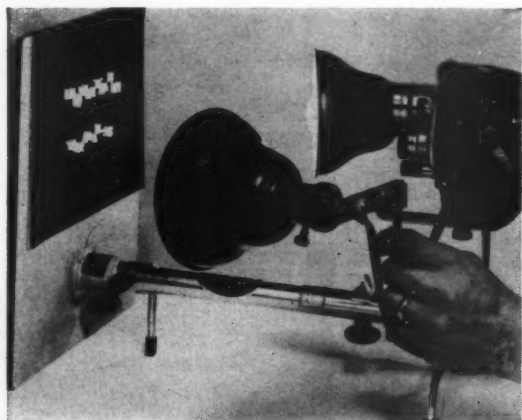
Now, move the platform forward, until the title looks

large enough in the viewfinder to be easily read. Mark the position of the camera platform.

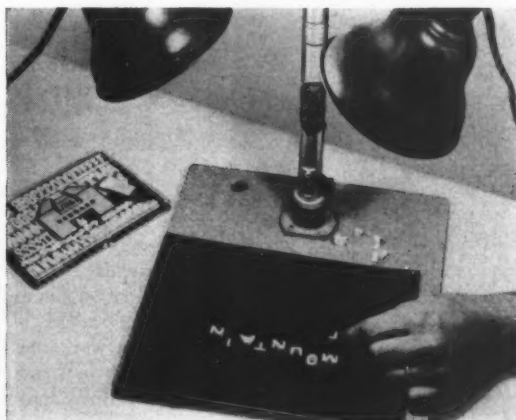
Move the platform back. Place a ruler, as shown in photo *below left, opp. page*, under the titler. Set exposure and focusing distance. Shoot about 1 sec. worth of single frames. Then, move the platform forward about  $\frac{1}{8}$  in. and shoot another single frame. Continue until you reach the minimum focusing distance. During the zoom, make slight adjustments in the focus as you move the camera. It takes practice to make the adjustments precise, but it's not difficult after a time.

The same single-frame technique is employed with an elevator tripod. Remove the elevator section from its collar and reinsert it upside down. Mount the camera on the panhead. Determine distances as above.

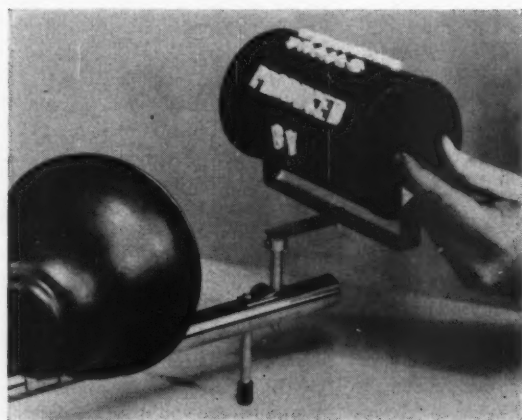
Crank the camera up to (*Continued on page 106*)



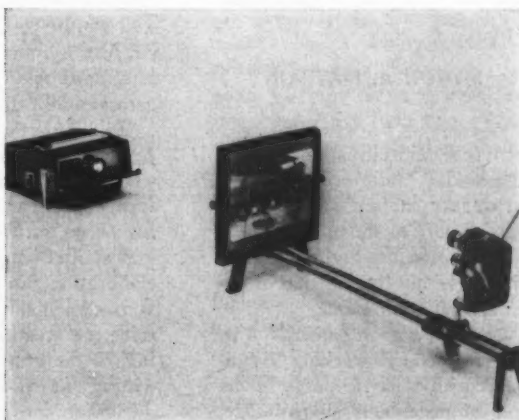
**LIGHTING:** Adjust titler lights, as above, to give flat lighting. Best position for lights is slightly behind and above camera. However, smaller f-number is possible if you move lights in close to title. Make sure that they do not encroach upon the lens field of view.



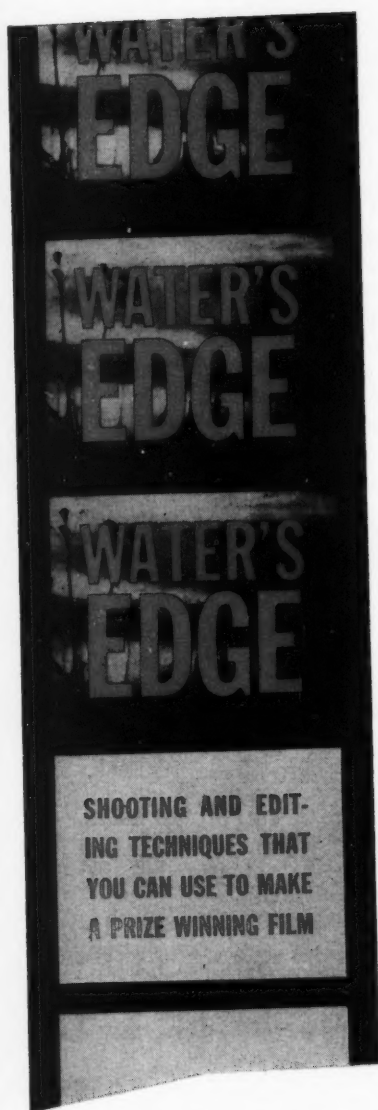
**ANIMATION:** After shooting enough single frames for about 1 sec. of screen time for empty background, position first letter and expose 4 frames. Continue shooting single letters until title is spelled out. Title appears to spell itself out on screen when projected.



**ROLL TITLE:** Mount title and credits on roll and rotate titler, using degree marks as a guide. Each move must be the same as the previous one for smooth roll effect on the screen. Don't attempt to crowd too much into title since audience may have difficulty reading it.



**SUPERIMPOSITION:** You can shoot titles on color slide backgrounds by back projection. For best results, choose slides with little shadow area. Reverse slide so that image will be correct on side of ground-glass screen facing movie camera. Use slow fps.



by MYRON A. MATZKIN

ALL MOVIE MAKERS dream of making an impressive, interesting, professional quality motion picture. Few ever get around to starting it. Often, they feel that a top-flight movie is beyond their ability, or that it requires special equipment.

If you have a good camera—8 or 16mm—in proper working condition and with a lens capable of delivering an acceptably sharp image, you shouldn't hesitate to try shooting a real movie. It can be more fun than casual snapshooting, and definitely more interesting—and it can take less time to shoot than you

think. The professional must stick to a tight shooting schedule. You don't have to. You can spread shooting out over a day, a month, a year, or five years—as long as you like.

You may produce an award-winning film—or at least you can make a movie that will fascinate your living-room audiences.

Ernst Wildi's prize-winning film *Water's Edge* proves our point that an amateur can create a film to equal professional films. Wildi is an amateur whose film budget and equipment are similar to what you may have. On these six pages we trace the making of Wildi's film and show you how you can use his techniques.

#### You have the equipment

As far as equipment goes, there's no doubt that an assortment of lenses can help make cinematography easier. But you don't actually need them. Wildi used a telephoto and normal lens for most of his shooting. Only six percent of the scenes in his 40 ft. film were made with a wide-angle lens. The only extras you really require to shoot a top-flight film are a tripod and an exposure meter. And you should be using these anyway.

A workable, interesting theme for a movie is essential. For many years a professional film was synonymous with the story or theatrical movie. That's no longer true. Even neighborhood theater audiences are accustomed to seeing documentary, mood, expressionistic, and outright experimental films. Such pictures are well within your scope. The theatrical film is too ambitious, requiring sets, costumes, a trained group of actors, and a director.

Wildi, for example, chose a subject close and common to all of us—water. He showed it in its many forms—from a tiny drop to a pounding ocean surf.

A similar simple theme capable of elaboration can be found in or near your own home. Your movie might trace the creation of a finger painting, or the growth, blossoming, and wilting of the flowers in your garden during an entire yearly cycle.

Some ideas may take you further afield—the thousand angles and convolutions of a roller coaster at an amusement park, the patterns, the puddles, the streaked windows, the

colorations of rain in a city or in the nearby countryside.

While it's true that Wildi traveled several thousand miles to shoot his film, his travels merely coincided with his vacations. Time and place have nothing to do with his film. It might well have been shot within 100 miles of his home.

#### You don't need a script

For such a movie, scripting is often unnecessary. Wildi made none. He had no intention of doing a realistic movie on water. Rather, it was to be a film where one image would relate to another and most of the work of developing the actual form of the movie would be done in the editing. Therefore Wildi went looking for the images that would best suit his ideas, not really knowing when and where he would find them.

How much film will you have to shoot? Some truly exciting, complete ideas can be expressed in 30 sec. of screen time. Others take hundreds of feet or more.

Sound—voice or music—can be important to a film. Do you really need it? And if so, how do you add it? We'll talk about that more fully in the section on sound, page 79.

#### Awards won by Wildi

The success of Wildi's movie-making technique is attested to by the fact that *Water's Edge* has won awards on three continents. It won the Grand Prix over all entries at the Amateur Film Festival of Cannes. Later Wildi was presented with the Governor of Tokyo Award at the Japanese International Film Festival. The audience award of the Vancouver International Film Festival followed. Finally, *Water's Edge* won an award at the Louisville Photographic Salon.

And now Wildi is about to take on the professional film makers. His movie is to be entered in the American Film Festival, an event sponsored by the Educational Film Library Association in New York City.

While your plans may not be quite as ambitious, you'll find from reading this story that making a good movie is a combination of technique and imagination. But technique only serves to help put your ideas on film. It's not an end in itself.

## A TRIPOD IS A MUST, EXCEPT...

The suggestion to movie makers that they use a tripod is so frequent and persistent that reiteration seems unnecessary. However, the viewfinder on a light, compact 8mm movie camera can lull you into a false sense of tripodless security. When using wide-angle or normal lenses the image appears almost rock steady—with not enough shake to

worry about. Even with a tele lens in position, shake may be so mild as to seem unimportant. But no matter what lens you use, camera shake will be there. You'll see it once you project your film—even on a small home screen.

Wildi, insists, however, that despite the practicality of the tripod, there are times when it's impossible to use one. When shooting a sequence from a boat, he found that engine vibration transmitted through the deck to the tripod seriously affected camera steadiness. So he hand-held the camera, and allowed

his body to cushion the vibration.

The time factor must be considered, too. The fountains at Versailles are turned on only at brief, infrequent periods. Wildi wanted many different shots from varying angles. It wasn't practical to set up the tripod, shoot, fold the tripod, and race to a new location. He could get mobility only by hand-holding.

Wildi also feels that, under certain conditions, you can make a smoother pan with a hand-held camera than by mounting it on a tripod. He prefers to hand-hold for panning fast action, for example.



Collapse perspective.



Shoot close-ups.



Make impossible shots.



Eliminate the background.

## USE YOUR TELE FOR CLOSE-UPS

Look at the winning entries in any film contest and you'll see that they are packed with strong, hard-hitting close-ups. The images are sharp, and quickly grasped by the audience. If anything is typical of *Water's Edge*, it's the many close-ups that follow each other in quick succession on the screen. In fact, the movie is almost 75 percent close-ups.

While any lens that will focus near enough to the subject to fill the frame can be used for close-ups, Wildi favors the telephoto. He agrees with many still photographers who find close-up images with a telephoto have a more pleasing perspective than those photographed with a normal or wide-angle lens. More important, the telephoto lens is flexible—it can be used extremely close to the subject or many feet away, depending on the situation.

A normal lens for the frog, *second from top, left*, would have meant placing the camera within inches of the subject. The chances of the frog's staying around long enough to have his picture taken would have been slim. With the tele mounted on a 5mm extension tube, Wildi shot from 3 ft. away from the subject—far enough not to frighten the frog, but close enough to fill the frame.

The best close-up shots sometimes can be had only by placing the camera at what would be an impossible angle for a normal lens. The ice photo, *second from bottom, left*, was

taken from a bridge 10 ft. above the stream in order to show the movement of water under the ice.

Also, a telephoto lens can appear to collapse perspective—bring foreground and background closer together than they appear to the eye.

In the photo of the birds, *top left*, the sea appears to loom up over the birds and dominate them. The tele established a strong relationship.

Everyone knows that the depth of field of a telephoto lens is narrower than that of a normal or wide-angle lens at a given f-number and focusing distance. In most circumstances, this means that the subject will stand out sharply against a thoroughly out-of-focus background. Wildi emphasized icicles, *bottom left*, this way.

Wildi had no focusing or framing problems with his tele shots since his camera offers through-the-lens focusing and viewing. But even if your camera has a separate viewfinder system, for near subjects—6 ft. or under—a tape measure or a pocket rangefinder will help you get accurate distance settings. If your camera finder has parallax correction marks, use them. If it doesn't have them, you might want a device such as the Elgeet Cine-Flex (see page 72).

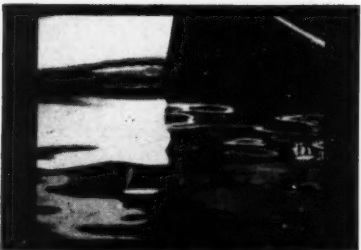
Wildi used 2-, 3-, and 6-in. lenses for his close-ups. However, if you have a zoom lens, you already have an infinite number of focal lengths between maximum and minimum settings. But even one tele—a 1½-in. on an 8mm camera, for instance—can be used for many scenes. Wildi depended on the 3-in. tele for most of his close-ups, using the other tele lenses only occasionally.



Expose for highlights.



Bracket exposures.



Adjust for highlights.

## GOOD EXPOSURE REQUIRES CARE

The technical perfection required of a movie such as Wildi's—or the one you are thinking about—necessitates careful exposure control. Electric eye cameras without manual control provide only general overall readings from camera position—allowing no adjustment for a specific lighting or subject. The automatic or semi-automatic cameras which permit manual settings are ideal.

Wildi, using a separate meter, often based his exposure on average overall readings altered slightly to fit the conditions. But in some cases he was able to use readings on specific parts of the scene which he wished to emphasize. For example, the ice formation, *top left*, has predominantly strong highlights and only a small shadow area. Wildi's approach to this type of situation is direct. Since ice represents water—the theme of his film—it's the most important element in the scene. He took his reading from the ice.

However, because he often could not approach his subject directly, Wildi relied on general readings and variations to suit the situation in much of his footage. For instance, in the second photo, *left*, you see a large expanse of backlit water with a boatman off center. An exposure based on a reading for the water alone would have been unpredictable for the rest of the scene. The boatman could be underexposed. Also, the shadow area at the upper right edge of the frame might turn out dark if the water itself were adequately exposed. Wildi's first exposed footage was based on the overall reading. He then shot the same scene again one stop under the indicated reading and additional footage one stop over it. After processing, he selected the best.

Reflection shots can be difficult, as in photo at *lower left*. Even though water is the most important element in the scene, exposure for it could have easily resulted in overexposing the white hull of the boat. Wildi took his reading for the water, and then closed his lens slightly to compensate for the strong highlight represented by the boat. It worked.

## SPECIAL EFFECTS—RIGHT OR WRONG?

Amateurs who add an overabundance of lap dissolves, fades, double exposures, slow motion sequences, and other forms of trick photography are quietly screaming for attention—which is all right if you want your technical proficiency to be the chief attraction.

Some tricks and special effects have a rightful place in a movie. Lap dissolves—where one scene fades out while the following one fades in on top of it—can be a great help when a cut would make an awkward jump.

You can make dissolves in many different cameras. You shoot a scene and slowly fade it out. Then you rewind the film to the beginning of the fade and start a second scene, fading it in. The fades can be made by opening and closing the variable shutter,

or by closing and opening the lens diaphragm. However, until your film returns from the processor you don't know if the dissolve was successful. You have little visual control over the fade. You may decide the shots don't even belong together. If they do belong, you may decide that a straight cut would look better.

If you must use a dissolve, the best system is to have it added by the laboratory. Wildi, for example, had 20 lap dissolves added in a lab's optical printer in his first version of *Water's Edge*. However, the lap dissolves presented an unnatural situation on the screen—two different scenes at the same time—and they disturbed him. By the third and final version of his movie, all but one of the lap dissolves were removed. He found that they only slowed the pace.

The straight fade-in—starting with a dark screen and slowly bringing the image to correct brilliance—and its opposite, the fade-out, are somewhat more useful. They act as

visual punctuation marks—signifying the start and end of a sequence or the film. Wildi uses them at the start and end of *Water's Edge* and for the titles and credits.

His titles, incidentally, are superimposed over live footage. This can also be done in the camera by first shooting the title—white letters against a black background—and then rolling the film back to the start. It is then re-exposed for the scene.

Double exposure is another device to be used with caution. It works best only when the audience isn't aware that they're seeing a camera trick. Wildi shot one river, then superimposed another over it by backwinding the film and re-exposing. Not one person in the many audiences who have seen the film noticed the trick.

In one instance Wildi shot at 32 fps (instead of 24) to slow down the motion of a gull's wings. He also used 32 fps to shoot the breaking of waves on a rocky shore, to make the power of the water more apparent.

## SOUND IMPROVES EVEN TOP FILMS

There's really no such thing as a silent movie. Even when you show a film in the living room, you probably provide a steady stream of commentary if the film doesn't have a regular sound track. In fact, a movie without any sound at all would be terribly unnatural. We expect to hear sound with every action we see in life—and likewise with movies.

While the off-the-cuff commentary is all right for less serious film making, a prize-winner needs a planned, synchronized sound track to make the film truly effective. That doesn't mean you must lug around a portable tape machine complete with synchronization setup for your camera. Music added after the film is edited can supply the feeling of the actual sound of the images.

The old-time movie makers knew this and every "silent film" was distributed with piano music to be played as the film was shown.

To add music you choose a selection that fits the mood of your film, key it to the action, and then re-record it with some method for keeping sound and image synchronized.

A well-chosen musical selection can do a lot to lift your film right into the professional class. Unless you have commercial ambitions for your movie you can use recordings you have around the house. Wildi did just that for his first version of *Water's Edge*. However, it's best to use music that's been cleared for films if you plan to show your movie in public. Two sources for recordings are Boosey & Hawkes, 30 W. 57 St., New York City, and T. J. Valentino, 150 W. 46 St., New York City.

Match the music you select closely to the screen action. Wildi, for example, used loud, fast passages from Debussy's *La Mer* with thundering wave action. For more pastoral scenes, a slowly moving river, for instance, he used part of the *Origin of The Amazon* by Villa Lobos.

You don't have to confine yourself to available recordings. Originality is one of the measures of a prize-winning film. Wildi had com-

(Continued on page 104)



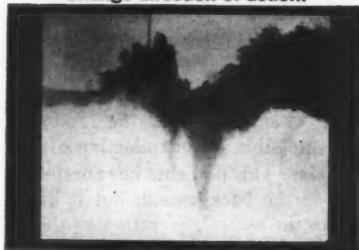
Use subtle action.



Wait for the right second.



Change direction of action.



Contrast with fast action.



Shift to related images.



Frame movement in background.

## VARY DIRECTION, SPEED OF ACTION

Movie audiences are much more sophisticated than they used to be and the unrelieved high speed type of screen action that keeps the audience constantly at the edge of their seats won't work. A constant state of hypertension can be as disenchanted as a series of absolutely motionless images. Movie action needs a change of pace.

There are at least three ways that action can be varied—speed of movement in the frame, the direction of the action, and use of a subject that contrasts strongly with the rest of the film.

First, let's talk about speed of action within the frame. In Wildi's movie water is never at a standstill. Movement may be as subtle as a dripping icicle or as dynamic as waves pounding against the shore.

Even in scenes where there's apparently no motion, water is on the move. In the photo *top left* the branch in the middle of the pool is perfectly still, but the ripples slowly eddy around the branch to sustain the feeling of action.

This shot contrasts with the one of the rapids, *third from bottom, left*. Here, the boiling water provides action that dominates the screen.

Getting action into a shot may mean waiting for the right moment to shoot, as in the scene *second from top, left*. Wildi noticed that the sea gulls whirling around the dock often landed on the piling in the upper left of the scene. He waited until one of them started to approach the dock and then began shooting. The scene is actionless on the screen for less than a second as the bird darts in from the upper right-hand corner of the frame.

Long shots of scenery usually slow the pace of a film considerably, but an unexpected image involved in a simple action can instill life into the shot. In the scene of the river, *bottom left*, Wildi framed a grazing cow in the background to supply an extremely slight movement—but one that saves the scene from being simply a still photograph on movie film.

(Continued on page 104)

## ESTABLISH FILM PACE BY EDITING

When you finally sit down and run all your film through an editor, the time, effort and money expended suddenly become worthwhile. Your first impulse will be to start chopping and connecting immediately. Resist it. Until you have seen all your footage you can't possibly judge the relationship between one scene and another. Project all of it many times, noting the subject and length of each scene. Then, 3 x 5 index cards can be used for a footage file—one card for each shot, with both subject matter and length of scene clearly indicated. By arranging and rearranging these cards you can arrive at a rough approximation of how various orders of shots within a sequence might possibly fit together. Still photographs of each scene (see "Movie Maker," page 96), if attached to the cards or used in place of them with footage length noted on the back, are even more precise.

How can you edit together footage containing a single idea shot against various backgrounds? By using proper pacing, good transition, sequence building, intelligent timing, and making the most effective use of the directional movement of each scene. Let's examine these editing devices one at a time.

**Film pace:** Every move you make while editing should enhance film pace—the particular rhythm of image following image best designed to hold audience interest. Varying pace helps increase interest in the whole movie. Often, pace begins to emerge by itself as you edit. But with other films it's up to you to decide on an overall pace after viewing the miscellaneous footage. With *Water's Edge*, Wildi alternated periods of violent action with slow, tranquil sections. The movie begins with melting ice, progresses gradually through a series of cuts of a river forming a waterfall to a climax in the rapids below. The river calms. The scene cuts to a water wheel before the pace and water quickens again.

**Transition from one scene to another:** Abrupt scene or pace changes

can be disturbing—they're therefore effective for producing shock effects. You can smooth over scene changes even when the footage has been shot at widely different times and places, by making gradual transitions or changes in pace. Wildi, going from the boiling rapids to the tranquil water wheel, slowed the action by degrees through a series of cuts. He started with a shot (*bottom right*) that panned from the rapids to less turbulent water. His next cut (*second from bottom, right*) shows the river moving even more slowly. In a third cut (*third from bottom, right*) the river is moving almost imperceptibly in the background. Finally, the cut to the slowly turning water wheel is made without a jarring effect on the screen.

**Direction:** By constantly keeping screen direction in mind, you can help weld together scenes dealing with a single idea but shot in various places. To relate two images, they must take the same direction on the screen. If the first travels left to right, the second must also. Wildi used direction to lace together the three shots, *bottom right*. The river, in the first, flows from right to left. The next river shot flows in the same direction. However, toward the left, the river starts to turn. This directional change within the frame makes possible the introduction of a third shot. This new shot has another river in the background, but it fits in with the second, even though this river moves left to right—counter to the direction of the first river.

Wildi introduced the change of direction because the water wheel turns from left to right also. By matching the water wheel's direction, he provides a smooth cut although using film shot miles apart.

**Building sequences:** The intelligent use of a wide variety of angles and framings serves to build sequences effectively. You are, in effect, editing during filming. Wildi, shooting the water wheel, *right*, visualized the sequence as it would appear on the screen and shot accordingly. In the first version of *Water's Edge* the water wheel shots were edited together consecutively. But in the final version Wildi intercut shots of the pond (*second from*  
(Continued on page 105)



## A & B ROLLS HIDE YOUR SPLICES

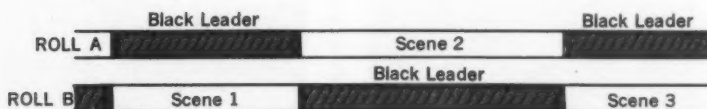
It's annoying to spend hours editing a film and then have a series of light flashes on the screen each time the film reaches a change of scene. This can't be helped if you show your original film with the scenes joined together with a regular cement splicer. Having a print made of the original serves two purposes. First, by using the A and B system of splicing the film, you can have the print made on one continuous length of film. Second, you protect the original footage so that additional prints can be made.

The A and B, or checkerboard, splicing technique works as illustrated *below*. You need a splicer that cuts on the film frame line, a roll of black leader, and a synchronizer. All three can be obtained from a professional motion picture supply house. The splicer and synchronizer can be rented for a nominal charge.

The original film is threaded through one side of the synchronizer and the leader through the other. You then advance the takeup reel to the point where the first two scenes join. The synchronizer assures that the length of leader unwound always matches the length of film. The film is separated, and the first scene remains on its rewind. The black leader is cut from its roll and spliced to the first scene. The second scene, in turn, is transferred to the roll of black leader. Both rolls, the leader and the original film, are then advanced to the next splice and the procedure repeated until you have two rolls with alternating leader and film. The film is placed in the splicer so that the scraped area of the image always lies under the black leader.

### Spliceless film

With the A and B rolls, a film laboratory can provide you with a movie on one uninterrupted length of film. A and B rolls must also be used if you want fades and dissolves made in the laboratory.



## DON'T OVERLOOK COLOR MATCHING

If you want your film to be a prize-winner, you'll have to spend considerable time on details such as color matching. A good editing job can be ruined if colors in one scene clash with those in the next.

Wildi used a shot of icicles against snow because he felt the lack of color provided the scene with a colder feeling. Then he cut to shots of ice. To make the change to colors with more warmth he followed with scenes that displayed more and more brown rocks and less ice.

He also found that in editing *Water's Edge*, blue water in one scene must closely match the blue in

another water scene. Two different blues, for example, can be more disturbing than a scene that's predominantly gray following one with an overall blue color.

However, a definite contrast between the colors in one scene and those in another is often effective. In one instance Wildi follows a shot of a brilliant green frog with a scene showing a bright blue sky.

### Using subdued colors

The colors need not be bright to be effective. In *Water's Edge*, a harbor scene ends with the black hull of a boat dominant and the film cuts to a shot of sea gulls against sky that looks more white than blue. In scenes of fountain spray the water appears white against an almost perfectly black background.

# SPLICING. TAPE OR CEMENT?

BUYING A SPLICER once involved one consideration—how much money you wanted to spend. There was only one type—basically a machine for clamping two pieces of film in correct alignment for cementing. The quality of a splicing machine bore a definite relation to its cost.

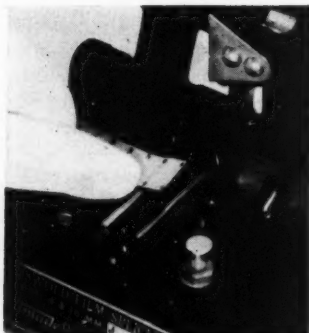
Now, you can choose either a cement splicer or one using tape. The tape system employs Mylar plastic of 1/1000 in. thickness. While a good cement splicer remains costly, a usable tape unit is quite inexpensive.

As you can see from the photographs, a cement splicer requires that the film be first scraped and then overlapped. With Mylar the film is butted end to end, and the tape placed over the joint and adjacent frames. (Continued on page 107)

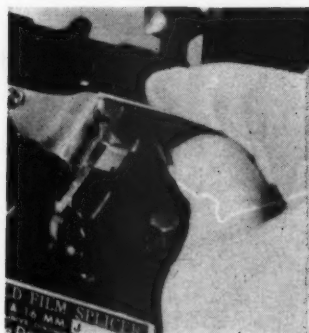
## OVERLAPPING SPLICE REQUIRES CEMENTING, SCRAPING, CLAMPING



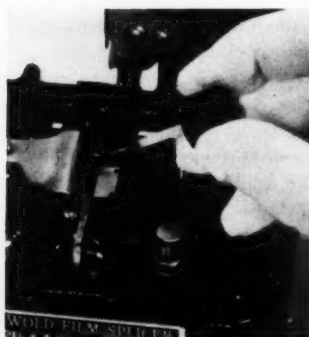
1. Place film length at right of splicer on sprockets with one frame overlapping splicer center. Bring clamp down to hold film firmly in place.



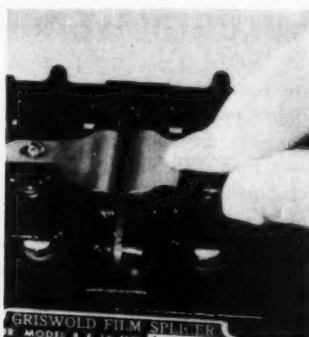
2. Raise right-hand splicer arm out of the way, place left-hand length of film on sprockets with one frame overlap and clamp in place.



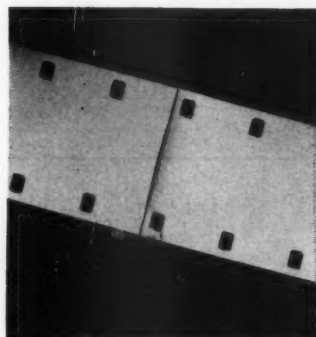
3. Bend end of film slightly and then scrape off emulsion with razor blade or special film scraper. Take great care not to gouge film base.



4. Apply a little film cement. Take care not to use too much, because excess cement will weaken film base, cause splice to break.

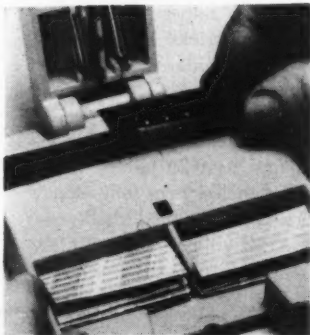


5. Bring right-hand clamp down to cut tab on scraped portion of film and to join both ends. Cement takes about 30 seconds to dry.

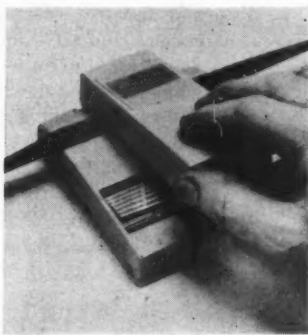


6. Properly made splice is strong and will last for long periods of time. However, flash of light will often show on screen at point of splice.

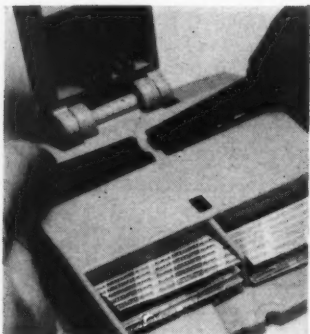
## NO CLAMPING FOR INTERLOCKING TAPE SPLICE



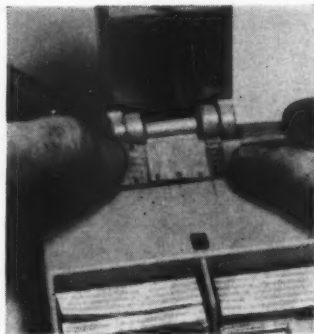
1. Insert both ends of film to be spliced into Kodak press tape splicer with frames overlapping, or make cuts separately, if you like.



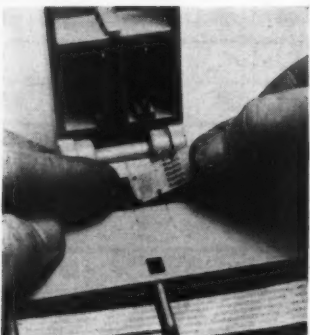
2. Bring cutting bar smartly down to cut film. Cutting blades should be cleaned periodically to insure smooth cut and long life.



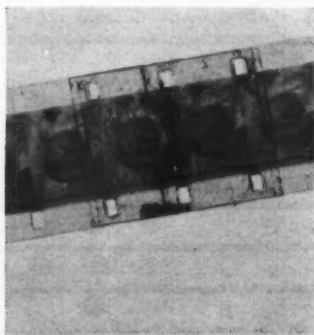
3. Blade makes interlocking cuts on both ends of film. Cut is so precise that any right-hand cut may be joined with any left-hand cut.



4. After film ends are joined by placing in sprockets, place tape with paper backing still on it on sprockets over the cut. Holes must fit snugly.

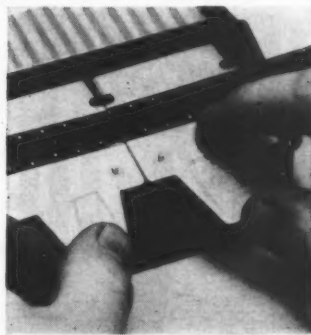


5. Hold tape with one finger, while fingers of other hand slowly draw paper backing. If pull is even, holes of tape and film will align.

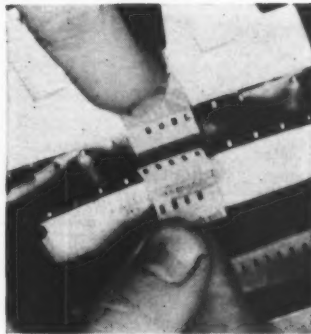


6. Splice will last life of film and is stronger than film itself. However, tape can be removed for re-editing. Tape won't jam in projector gate.

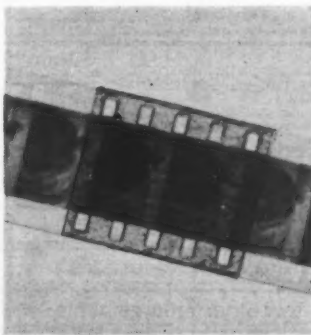
## STRAIGHT CUT SAVES FRAMES



1. HPI splicer makes cut on frame line, exactly bisecting sprocket holes. After film is cut by blades on splicer, place it end to end on sprockets.



2. Place tape on sprockets on upper edge of film and peel off paper backing. You can't wear editing gloves when you use Mylar tapes.



3. Well-made tape splice shows no light flash on screen when scenes change. Special HPI tape is available for sound-stripped film.

# MOVIE LAB SERVICES WILL HELP

MOTION PICTURE LABORATORIES provide many more services than film processing—everything from special effects to film preservation and cleaning. Most of the trick shots—double exposures, split screens, and fades and dissolves—are made in the lab rather than in the camera. But labs supply more than tricks. They'll edit your film, duplicate it, or reduce or enlarge it, for example. Most of the charges can be met by an amateur budget. Magnetic sound striping may cost as little as 4 to 6 cents per foot; an 8mm duplicate, as little as \$5.

The chart on these two pages lists 36 laboratories around the country and some of the services they offer. One or several of the services may be just what you need to make a good movie out of your footage. While

		Arco Movie Films	Bonine Film Laboratory	Cine-Craft	Cine-Graphic Film Lab, Inc.	Cinematic Developments Co.	Cineque Colorfilm Labs, Inc.	Colburn, George W., Laboratory, Inc.	Color Reproduction Co.	Commercial & Home Movie Service, Inc.	Criterion Film Labs, Inc.	Dephousse Studios, Inc.	Eastman Kodak Co.	Escar Motion Picture Service, Inc.	Film Associates, Inc.	Hollywood Film Enterprises, Inc.
Titling	8mm		●							●					●	
	16mm		●			●		●		●	●	●		●	●	●
Editing	8mm			●	●					●	●				●	
	16mm			●	●	●		●		●	●	●		●	●	●
A & B Breakdown	8mm			●						●	●					
	16mm			●	●	●		●		●	●	●		●	●	●
Optical Printing	8mm			●						●	●					
	16mm			●				●		●	●				●	●
Fades & Dissolves	8mm									●						
	16mm		●	●		●		●	●	●	●	●		●	●	●
Duplicating		●		●	●	●		●		●	●	●	●	●	●	●
Color Correction				●		●		●		●	●			●	●	●
35mm Slides							●	●		●		●			●	
16 to 8mm Reductions		●	●	●				●	●	●	●				●	●
8 to 16mm Enlargements				●				●		●	●				●	●
Cleaning & Repair				●	●	●		●	●	●	●	●		●	●	●
Preservation			●	●	●			●	●	●	●	●		●	●	●
Magnetic Striping				●	●	●		●	●	●	●	●	●		●	●
Sound Recording						●		●		●		●		●	●	●

some of the services are available only to users of 16mm film, most labs also handle 8mm. As 8mm grows in importance, labs will no doubt offer more 8mm services.

Here's a quick explanation of the services listed.

**Titling:** Labs will shoot your titles according to your own specifications as to words and backgrounds. A few will shoot titles on live footage. Titling is available for both 8 and 16mm films. Charges vary according to number of letters and type of background.

**Editing:** While most film makers prefer to do their own editing, many labs will do the physical work according to your script or instructions. Others will take processed stock and edit it creatively—building an idea based on the footage. Charge is by the hour.

**A & B breakdown:** On page 81 you'll find a full explanation of an A & B breakdown. Briefly, it's a way of preparing your edited film to facilitate the making of fades and dissolves, double exposures, titles over live footage, or any other lab procedure where two or more shots are combined. Most labs will do it for 16mm, only a few for 8mm. Charge is by the hour.

**Fades and dissolves:** In a fade-in the scene starts with a completely dark screen and gradually lightens to correct brightness. In a fade-out the scene starts at correct brightness and slowly grows dark. A lap dissolve consists of one scene fading out and a second fading in at the same time. To have fades made, you need only specify where you (Continued on page 108)

Hollywood Film Enterprises, Inc.	Hollywood Valley Film Labs, Inc.	Kin-O-Lux, Inc.	Lab TV	Lord Film Labs	Multichrome Laboratories	National Cine Laboratory	Peerless Film Processing Corp.	Pernafilm, Inc.	Photo-Tech Laboratories	Rapid Film Technique, Inc.	Relab Studios	Southwest Film Laboratory, Inc.	Stahl Editing & Titling Service	Thore Products Co.	Titla-Craft	Top Productions, Inc.	U.S. Photographic Equipment Corp.	Vacumete Corp.	Walton, Frederick F., Inc.	Western Cine Service, Inc.	Zenith Cinema Service, Inc.
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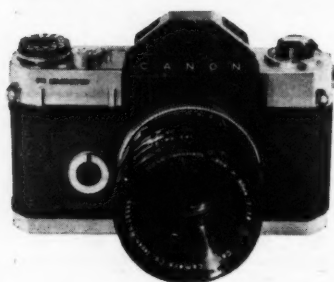
Want the addresses of the laboratories in the chart? See page 110

# MODERN TESTS

NEWEST CAMERAS • LATEST FILMS • IMPORTANT ACCESSORIES

MODERN PHOTOGRAPHY'S exclusive monthly equipment report section devoted to informative, unbiased field tests of equipment submitted to and passed as acceptable by our technical department.

## NOW THERE ARE THREE 35MM CANONFLEXES



**Manufacturer's specifications:** Canonflex R2000 35mm single-lens eye-level reflex. **Lens:** 50mm f/1.8 Super-Canomatic with stops to f/16 and focusing to 24 in. **Shutter:** Cloth focal-plane with speeds from 1 to 1/2000 sec. plus B and T, FPX sync. **Viewing:** Interchangeable eye-level prism reflex with full ground glass, Fresnel lens with central clear spot. **Other features:** Automatic instant-return diaphragm with rapid-return mirror; provision for previewing depth of field; bottom rapid wind trigger, top rewind crank; all shutter speeds on non-rotating dial; auto resetting frame counter; provision for exposure meter coupling to shutter dial. **Price:** \$339.50. **Importer:** Scopu/Brockway, 404 Fourth Ave., New York 10, N. Y.

**Manufacturer's specifications:** Canonflex RP 35mm single-lens reflex. (Same as R2000 above but with chrome-covered fixed prism instead of black interchangeable; shutter speeds 1-1/1000 sec., plus B, FPX sync.) **Price:** \$249.50.

If you've been eyeing a Canonflex but have felt you didn't like the split-image central rangefinder of the already available \$299.95 Canonflex, or you didn't need an interchangeable prism, or you did want a faster top speed than 1/1000 sec., there's now a Canonflex to suit your needs exactly.

The Canonflex models are basically the same as tested by MODERN in the June 1959 issue. In our review at that time we found the Canonflex to be extremely automatic in operation, well made, quiet, with a brilliant focusing image, the corners of which could easily be seen by eyeglass-wearers. We admired the highly visible control scales, the large bayonet lens mount, the exceptional sensitivity of the rather awkwardly placed accessory meter (\$20). We noted that the body was slightly heavier and larger than the Canon VI rangefinder camera, that the placement of the rapid wind lever would appeal to some but not to others and that the depth-of-field preview feature was slightly awkward.

The only new feature which we feel bears comment is the complete ground glass with no split-image rangefinder. But no hard and fast conclusions for or against either focusing system can be drawn, since some photographers prefer a plain ground glass and claim that the split-image rangefinder is distracting, while others say that they are unable to get precise focus without it.

We did not test the 50mm f/1.8 Super Canomatic lens on the original model, since we were told it was a

pre-production sample. We were unable to test any of the accessory lenses either. We were therefore gratified to obtain for test not only the R2000 with a 50mm Super Canomatic lens, but also the 35mm f/2.5, 100mm f/2, 135mm f/2.5, 200mm f/3.5 and 300mm f/4 Canon lenses.

First the 35mm f/2.5 Super Canomatic (\$154.95). It has the same automatic diaphragm as the normal 50mm lens but focuses to about 14 in. We found in testing it that sharpness was acceptable at f/2.5 with much sharpness fall-off at the corners (most of which was caused by curvature of field, inherent in this lens, which affected sharpness at the corners only at close shooting distances—at distances over 20 ft. this lens produced improved corner sharpness). At f/8 sharpness was good with only little fall-off at the corners. Overall sharpness remained about the same at smaller apertures.

The standard 50mm f/1.8 Super Canomatic when tested revealed that at f/1.8 sharpness was good with little sharpness fall-off at the corners. When stopped down to f/4-5.6 sharpness was very good with only slight fall-off. Overall sharpness decreased just the slightest at smaller apertures. The compact 100mm f/2 Super Canomatic (\$199.95) focuses to 3 ft. and was good at f/2 with little sharpness fall-off at the corners. When stopped down at f/5.6 sharpness was very good with almost no fall-off. Overall sharpness remained the same at smaller apertures.

The 135mm f/2.5 Super Canomatic (\$211.95) focuses to 5 ft. and proved to be good at f/2.5 with some sharpness fall-off at the corners. At f/5.6-8 sharpness was good with only little fall-off. Overall sharpness remained the same at smaller apertures.

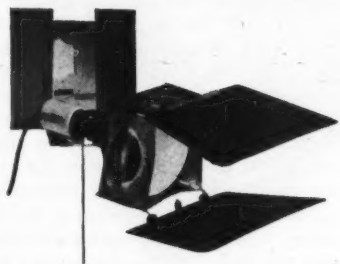
The 200mm f/3.5 Canomatic lens (\$239.50) is 6 in. long and has a semi-automatic diaphragm rather than a fully automatic one. After each exposure the lens must be recoiled to full aperture by turning a ring on the mount. However, there's a nicely placed depth-of-field preview button which allows the lens to be closed quite conveniently before exposure. Of course you must recoil the lens to full aperture again if you wish to refocus properly before shooting.

The 300mm f/4 Canon lens (\$380) is the same optic used on the Canon rangefinder camera with a reflex housing. For the Canonflex, a bellows focusing unit is fitted to the camera end to serve as a focusing mechanism. This unit is no hand-holding job, measuring 18 in. long and weighing 6 lbs. It has no automatic or preset

diaphragm mechanism, but does have a filter slot and holder. It can focus as close as 5 ft. Results of the tests indicated that with the 200mm lens sharpness was acceptable at f/3.5 with some fall-off at the corners. At f/8 sharpness was good with only little fall-off at the corners. Overall sharpness remained the same at smaller apertures. At f/4 the 300mm lens sharpness was good with some fall-off at the corners. Sharpness improved slightly but remained good at f/8-11 with some fall-off at the corners. Overall sharpness remained the same at smaller apertures.

All the Canon lenses were superbly finished, and functioned as smoothly as could possibly be expected.—H.K.

### LOWEL-LIGHT OFFERS FLEXIBLE LIGHT SYSTEM



**Manufacturer's specifications:** Lowel-Light photographic lighting fixture. **Features:** Porcelain socket; swivel mount; heat-insulated finger grips; notch and chain clamping device; wall mounting with special Gaffer tape, and neoprene-covered power cord. **Price:** Single unit, \$6.95 with 4 yards of re-usable Gaffer tape; Lowel-Light kit including five units, 15 yards of tape, and carrying case, \$29.95; Barndoors, \$5.75 each. **Manufacturer:** Lowel-Light Photo Engineering, 421 West 54th St., New York 19, N. Y.

The Lowel-Light is an extremely workable answer to the amateur or professional still or movie photographer who wants a lightweight, rugged, and flexible lighting system. The individual Lowel-Light fixture consists of a flat aluminum plate backed with a felt-like material and a porcelain lamp socket on a swivel. The swivel lamp allows adjustments in a complete circle as well as forward and back. An ordinary reflector flood is secured into the socket. However, separate photo lamps and reflectors may also be used.

The unit can be vertically mounted on virtually any flat surface without

using clamps. The Lowel-Light employs Gaffer tape—a special adhesive tape which can be re-used if kept clean. It's claimed that this tape can be used even on the most highly polished surfaces without leaving a mark. We tested it on a number of different painted walls and no marks could be seen when the tape was peeled off. (It should not be used on wall paper, flaking paint, or soft composition board, since it may cause surface damage.) It will hold the Lowel-Light to walls, floors, wood, or even fiber surfaces. However, the Lowel-Light should not be taped to a ceiling since it is apt to fall off.

A notched portion of the Lowel-Light plate also makes it possible to mount the unit on overhead pipes, light stands or other uprights without using the tape. A chain on the Lowel-Light supplies sufficient tension to secure the fixture in place.

Accessory barndoors that clip right over the reflector floods proved extremely useful—helping to control areas lighted by each lamp and preventing stray light from striking the camera lens. You can use diffusing cloths clipped to the barndoors with clothespins for diffused lighting effects—an impossibility with reflector floods alone.

We found that by using the Lowel-Lights the amount of lighting equipment we had to carry was cut drastically. Five Lowel-Light fixtures, a roll of Gaffer tape and all barndoors can be carried in a case measuring only 9 x 12 x 4 in. and weighing slightly less than 7 pounds.—M.A.M.

### B & H 8MM PROJECTOR, ZOOM, AUTO-THREADING



**Manufacturer's specifications:** Bell & Howell Dual/Letric 8mm movie projector. **Lens:** 15 to 25mm f/1.2 Filmovara zoom projection lens. **Lamp:** 150-watt T14 Tru-Flector. **Projection speeds:** Rheostat controlled from 16 to 24 fps.

**Reel capacity:** 400 ft. **Other features:** Automatic film threading; remote control; two-level projection lamp lighting; single knob forward, reverse, still, rewind; folding reel arms; built-in tape splicer; room lamp outlet; framer; automatic take up reels for 5-ft. power cord and 10-ft. remote control cords; film leader trimmer; elevation control; manual film advance; automatic loop restorer. **Price:** \$264.95. **Manufacturer:** Bell & Howell Co., 7100 McCormick Rd., Chicago 45, Ill.

The Bell & Howell Dual/Letric design is refreshingly different. Instead of the various hammertone or crackle finishes so often found on projectors, the B & H is in simple black with restrained satin metal trim. Turn on the Bell & Howell Dual/Letric and it just about does all the rest. To thread the projector you press a red button under the film gate, feed the leader into a loop former, and the film goes through the gate and attaches automatically to the takeup reel.

Once the loops have been formed and the film caught on the takeup reel, the formers pop out of position.

If the loop should be lost because of torn film or damaged sprockets, a quick tap at the red button reforms the loop.

You have the option of working the projector by remote control or by using the single control knob. In either case you can stop, start, reverse, go forward, or project a single frame at will. On remote control you merely rotate the remote control device in your hand. On each of the four sides of the remote control unit the appropriate illuminated markings appear right side up.

The automatic takeup reels for the remote control and power cords are particularly convenient when the machine is stored after projection. No wrestling with coiled cords to cram them into a tiny space. However, we do think the 5-ft. power cord is definitely too short. Until we got an extension, we had the cord stretched like a clothes line to reach the outlet.

The projector has two motors—one for the machine and the other for the cooling system. The B & H is one of the coolest running machines we have ever tested.

The Filmovara lens is one of the best zoom projection lenses available. With the projector and lens we tested illumination and image sharpness on the screen was excellent and virtually uniform from the center to the corners. Once focused, the Filmovara stays in focus throughout the zoom.—M.A.M.

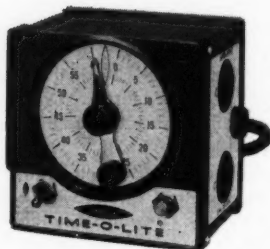
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## 2¼ REFLEX

(Continued from page 53)

film is wound to the next exposure (page 52). Thus, the shortest standard lens fitted to it is a 60mm. A normal mirror also limits the wide-angle lens of the Optika to 70mm. The Kalimar, also with a regular mirror, does have a specially designed inverted telephoto wide-angle lens of 52mm, still not as wide as the Bronica allows.

Closely related to the mirror problem is the method of focusing. The available 2¼ single-lens reflexes differ radically in these mechanisms too. The Hasselblad and Kalimar feature rather traditional double helical mounts which are controlled through a knurled focusing ring around each lens mount itself. The range of focusing and the closest distance focused upon depends primarily upon the length of the threads. The length of the threads in turn depends to a great extent on mirror clearance. In the infinity position, with the lens at its closest distance to the mirror, the threads are recessed into the camera body, with the ends of the threaded tube also close to the mirror. The mirror, therefore, limits the effective length of the helical threads and thus limits the closeness to which the lens can focus. Although one lens for 35mm cameras, the Macro-Kilar, is capable of extreme close focusing because of a double set of double helical threads, such a construction would be too space-consuming on the Hasselblad camera. Consequently, the Hasselblad's normal 80mm lens focuses to 3 ft., the 60mm wide-angle to 21 in., the 150mm to 5 ft., and the 250mm to 8½ ft.

### Tube or bellows?

The Bronica has a distinctive focusing method. The mechanism, a telescoping tube fitted to the camera body, measures about 11/16 in. when fully extended. This allows the 50mm lens to focus to 12 in., the standard 75mm lens to 20 in. and the 135mm to 4½ ft. This system however, has its limitations. The longer the focal length of the lens, the farther it must extend for close focusing. However, since the travel of the tube is the same no matter which lens is used, the close focusing distance of lenses longer than 135mm is limited. But for lenses above 135mm the Bronica reverts to a focusing mount directly on the lens itself and thus the 180mm f/2.5 focuses as close as 7 ft.

The Optika uses a different means to arrive at the same focusing ends as the Bronica. Instead of a focusing tube, the Optika has a bellows with a full 1⅜-in. draw. With the standard 105mm lens, this allows it to be focused to 28 in. There is no other method of focusing

when using lenses over 135mm but none is needed since the bellows draw is so long to begin with.

The remaining reflex, the Kalimar, follows the Hasselblad style with a regular double helical focusing mount on each lens. The close focusing limits here are 2 ft. for the 52mm wide-angle, 3½ ft. for the standard 80mm lens and 5 ft. for the 135mm.

### Turn over a new leaf

A word should be said at this juncture concerning the truly distinctive feature of the Hasselblad 500C which distinguishes it from all other 2¼ x 2¼ single-lens reflexes—the leaf shutter.

While previous mechanical difficulties in designing a constantly reliable focal-plane shutter for a 2¼ x 2¼ single-lens reflex have often been mentioned in line with the shift of Hasselblad to leaf shutter on the new 500C model, the actual practical gain for the photographer is in ease of synchronization. The leaf shutter can be synchronized for both flash or electronic flash at any speed up to 1/500 sec., while the problems of synchronization over 1/60 sec. with the focal-plane shutter are well known. The hazards of double or ghost images are a constant specter for photographers who use flash illumination.

The leaf shutter does provide the designer with some fascinating problems and the maker of the Hasselblad has solved them very cleverly. When the lenses are interchanged, an auxiliary two-piece metal focal-plane blind shields the film which would otherwise be fogged. This blind is synchronized to the shutter release and opens just before the leaf shutter operates. Incidentally, the blind also serves as a synchronized shutter for special applications in which the camera lens and shutters are removed and the camera body used alone. However, this additional blind plus the complications of activating the automatic diaphragm and shutter of each lens makes the possibility of incorporating in the future a rapid-return mirror and instant-reopening diaphragm a somewhat risky business.

### What goes on in back

Three of the 2¼ x 2¼ reflexes have interchangeable backs which allow you to change in mid-roll. The Optika uses an old system applied to a new camera. The back is purely an adaptation of the 2¼ x 3¼ film pack and roll film back which was widely used on folding film pack cameras prior to World War II. There is no interconnection between shutter wind and film wind. After winding the shutter of the camera, the film in the back must be wound separately.

(Continued on page 90)

# NEW...1 to 6 ratio!



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a continuously variable 8mm zoom  
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... a new achievement in zoom lenses with the greatest range ever in focal lengths (8mm to 48mm) ... with a fast opening of f1.8 ... with constant image position and constant focus (no refocusing necessary) over the entire zoom range.

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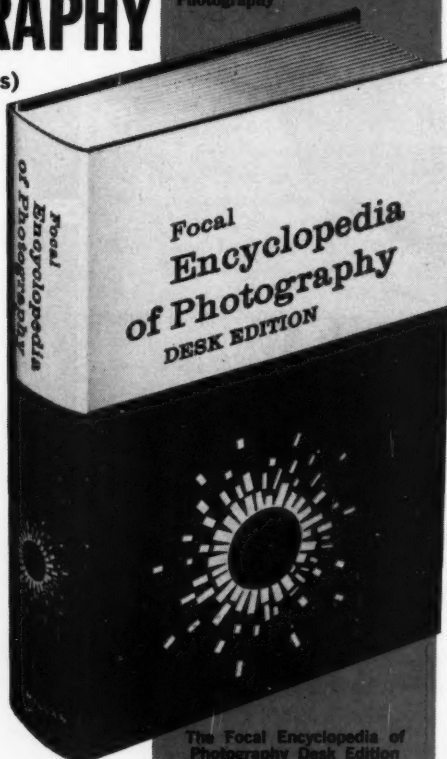
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**2 1/4 REFLEX**

(Continued from page 88)

To remove the back, you slip a dark slide over the film within the back and slip the back off. If you forget to replace the slide, the film becomes fogged.

The Bronica and Hasselblad have much more ambitious mechanisms which automatically wind the film and shutter together. In addition, you cannot remove the film backs without replacing the slides. The interior gearing to accomplish this is, as you can imagine, plentiful. The Bronica makes provision for attaching the back of the camera whether the camera shutter or film back is wound to the next exposure or not. The Hasselblad provides a matching system of dots on cameras and backs which must be matched properly before backs are replaced. Both cameras are truly remarkable machines.

**Faster lenses? Yes, but . . .**

How accurate must these 2 1/4 x 2 1/4 cameras be made in design and manufacture? Even though the 2 1/4 square film format does not require as great an enlargement to produce a good 8 x 10 print as does the 35mm double frame, sharpness and lens resolution equal to or better than 40 or 45 lines per millimeter are needed. This is just as tough a lens design problem as the 50 or better lines per millimeter desired in a good 35mm camera lens. In addition, for normal focal lengths of 75 or 80mm, the larger reflex camera lens has to cover a somewhat greater angle of view. This increase in good performance over a wider angle of view makes the lens design a good deal harder to achieve. It is thus unusual to find a maximum speed

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in "Too Hot To Handle."**

or more than f/2.8 in the normal focal-length lens and about f/3.5 in the wide-angle and telephoto. Faster lenses require acceptance of poorer sharpness, or more complex and costly design.

At 40-lines-per-millimeter sharpness and a lens speed of f/2.8 we get a working depth of focus of less than .005 in. All of the machining tolerances, the focusing drive backlash, and the adjustments of the ground glass, mirror, and lens mounting flange must add up to less than this total error if the camera is to stay in sharp focus during the lens or film-back interchanging, or the mirror

(Continued on page 94)

# Starlight

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5 Rolls	10.00	Mounted
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20 Rolls	38.00	Mounted

(These rolls can be mixed)

#### ANSCOCHROME, EKTACHROME & KODACHROME RELOADS (Processing NOT included)

35 mm. 20-exposure Daylight or Flash.  
Guaranteed fresh, in-date.

1 Roll	\$ 1.30	10 Rolls	12.00
5 Rolls	6.25	20 Rolls	23.50

(These rolls can be mixed)

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### FILM PROCESSING

(One Day Service)

#### 35 mm. Anscochrome and Ektachrome

	1 Roll	5 Rolls	10 Rolls	20 Rolls
20 Exposure Mounted.....	\$1.00 ea.	\$.95 ea.	\$.90 ea.	\$.80 ea.
36 Exposure Mounted.....	1.70 ea.	1.65 ea.	1.60 ea.	1.50 ea.
828 Bantam Mounted.....	.90 ea.	.85 ea.	.80 ea.	.75 ea.
Stereo Mtd. (15 Pairs).....	1.75 ea.	1.65 ea.	1.60 ea.	1.50 ea.
Mercury (36 frames).....	1.50 ea.	1.45 ea.	1.40 ea.	1.35 ea.

120-620-127 in Sleeves..1.00 ea. .95 ea. .90 ea. .80 ea.  
Mounted at 25c per roll extra

#### 35 mm. Kodachrome

20 Exposures.....	\$1.40 Mtd.	Stereo (15 pairs).....	\$2.15 Mtd.
36 Exposures.....	2.45 Mtd.	828 Bantam.....	1.00 Mtd.

#### 8 MM. & 16 MM. KODACHROME PROCESSING

8 mm.- 25' Magazine	\$1.20	16 mm.-100' Roll	3.60
8 mm.- 25' Roll	1.50		
16 mm.- 50' Magazine	1.45	KODACOLOR	
16 mm.- 50' Roll	2.15	PROCESSING	80c per roll

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#### 35 mm. to 35 mm.

1-10.....	20¢ ea. mtd.	51-100.....	12¢ ea. mtd.
11-20.....	15¢ ea. mtd.	101-500.....	11¢ ea. mtd.
21-50.....	13¢ ea. mtd.	501-up.....	10¢ ea. mtd.

#### Stereo Duplicates

1-10.....	35¢ pair mtd.	41-100.....	30¢ pair mtd.
11-20.....	33¢ pair mtd.	101-500.....	25¢ pair mtd.
21-50.....	32¢ pair mtd.	501-up.....	20¢ pair mtd.
Stereo to full 35mm.			25¢ each
16 mm. to 35 mm.			50¢ each

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	35¢ per ft. w/50' Minimum

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16 mm. to 16 mm.	11¢ per foot
* 16 mm. to 8 mm.	14¢ per foot
8 mm. to 8 mm.	11¢ per foot
* 8 mm. to 16 mm.	14¢ per foot
Minimum Order on 8 mm. & 16 mm. duplicates—	\$5.00
* 1 foot 16 mm. reduces to 1/2 foot 8 mm.	
* 1 foot 8 mm. enlarges to 2 foot 16 mm.	

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2 1/4 x 3 1/4.....	\$.20 ea.	\$.18 ea.	\$.15 ea.
3 1/2 x 4 1/2.....	.35 ea.	.33 ea.	.30 ea.
4 x 5.....	.40 ea.	.38 ea.	.35 ea.
5 x 7.....	.75 ea.	.73 ea.	.70 ea.
8 x 10.....	1.50 ea.	1.40 ea.	1.25 ea.
11 x 14.....	4.00 ea.	3.75 ea.	3.00 ea.
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# PICTURES in a **MOMENT**

by **JOHN WOLBARST**

**Inventors have been hard at work on ways to coat and protect Polaroid Land prints in the field.**



The problem of coating and protecting newly coated Polaroid prints gets a bit sticky once you go out of the house and away from the convenience of being able to lay your

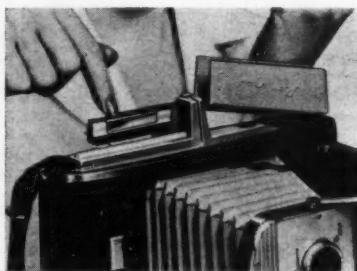
wet prints out to dry. Dust, wind, lack of space and a hundred other nuisances arise to threaten the safety of your beautiful photographs. I've had some very trying experiences when traveling with my trusty Polaroid.

Some gadgets have just appeared on the market which are designed to solve this particular problem. I submitted them to the Wolbarst scientific proving test—that is, I took them out and used them as directed.

(1) The PermaCoater; price, \$4.98. PermaCoater Corp., 9350 Wilshire Blvd., Beverly Hills, Calif.

This is a long thin plastic device that screws into the bottom tripod socket on the camera (photo 1). It's for coating only, and does not attempt to solve the problem of what to do with the wet prints.

As directed, I removed a Polaroid print coater from its glass tube, hung it in the clip of the PermaCoater and closed the lid to see how it would keep. The coater stayed juicy for several hours. Then it began to dry out. At the end of 48 hours an unused coater had dried enough so that, in my opinion, it



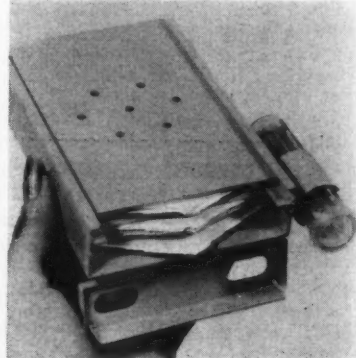
**1. The PermaCoater.** The Polaroid coater is inserted in the holder. Prints are drawn between the coater (which is pressed down) and the ridge below.

would be undesirable to try to coat with it.

I tried the device a number of times and found that it could be used as advertised. However, I was so awkward as to catch the edge of my sleeve on the end of the opened lid, thereby snapping off the very slender bit of plastic which serves as a hinge.

(2) The Print-Toter; price, \$1.98. Photo-Plastics Inc., 130-35 91st Ave., Richmond Hill, N. Y.

This is a neatly fashioned little opaque plastic box (photo 2) designed to provide a platform on which prints



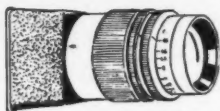
**2. The Print-Toter.** You slide a print into grooves on the top of the box which hold it flat, coat it, and then insert it in a drying compartment.

may be coated and in which the wet ones may be stored. There is a holder on one side to carry the print coater tube, and a clip on the back for attaching it to your pocket. Inside, are two compartments. The small one is subdivided by edge guides into holders for two wet prints. After drying, prints are removed and put in the large compartment. The directions warn you not to remove prints until they are completely dry, but do not explain how to determine the dryness of the prints.

There are grooves on the top of the box to hold the print while coating. It is easy to coat a print, but unfortunately it is impossible to coat to the very edges, which I (and Polaroid Corp.) consider to be necessary for long print life.

There is a hinged lid which closes over the two compartments. I opened and closed this a number of times without any trouble. However, the box happened to get knocked off a bench and

(Continued on page 100)



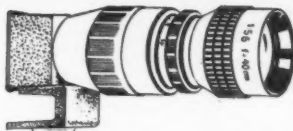
### MEDIUM TELEPHOTO LENSES

210mm f6.3 Actinar  
210mm f4.5 Actinar  
210mm f4.5 Actinar Preset



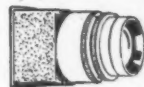
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105mm f3.5 Luminant Preset  
105mm f4.5 Doryt



### LONG TELEPHOTO LENSES

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### LENSES FOR PORTRAIT WORK

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### WIDE ANGLE LENSES

90mm f6.8 Schneider Angulon  
90mm f3.5 Aetna Terragon



### MACRO LENSES

for close-up work  
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Developed, Mounted, plus FREE FILM

20 exp roll	\$3.25
36 exp roll	\$4.65
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**NATIONWIDE Free Film**

## 2 1/4 REFLEX

(Continued from page 90)

swing-away and return operation during exposure.

The 2 1/4 square single-lens reflex camera demands as great care in manufacture and adjustment as the fine 35mm. Film flatness all across the format must be maintained to much less than the .005-in. tolerance. To aid in this the Bronica has a spring-loaded bar which presses the film and pulls it taut. This bar is situated just outside the film aperture between two small guide rollers. It is actuated whenever the film drive is stopped. In the Hasselblad, great care is taken in the design of the film guide rollers, the takeup spool tension, and the spring-loaded platen behind the film in the aperture, to provide a tautness and flattening action. In these two cameras, with their interchangeable film chambers, the additional problem of locking-in and guiding the film back, so that the film position and distance from the lens flange are maintained to less than the .005 in. overall tolerance, is serious. Just as a reminder, the thickness of ordinary typing paper, or the paper on which this magazine is printed, is around .003 or .004 in. All of the various mechanical tolerances in the various parts of the camera must add up to no more than about this value.

## Bigger and costlier

From the foregoing, it should be plain why the features which we demand even in moderately priced 35mm reflexes—rapid-return mirrors, instant-reopening diaphragms, complete interchangeability of lenses—is so much more expensive in the 2 1/4 x 2 1/4 single-lens reflex. Whether the future will hold some much-needed simplifications is open to question.

Take the film itself, for instance. In 35mm, the film is metered through the camera by the sprocket wheel, which allows the same length to pass it for each exposure. In the 2 1/4 x 2 1/4 reflex using a roll film with paper backing there are no sprockets. The takeup spool must have a gearing mechanism to adjust the amount of film passed, so that the pictures will be equally spaced even though the amount of film rapidly increases on the takeup spool. While this mechanism itself isn't complicated—almost every 2 1/4 x 2 1/4 twin-lens reflex has it—it becomes a major headache when you add interchangeable backs and all the other automatic features.

The whole problem could be obviated by the introduction of 70mm sprocketed film in place of roll film. The entire camera could operate like a big 35mm: 20, 36 or up to 50 exposures would be possible on a single cartridge, since

there would be no paper backing to take up room. The changeover is definitely going to occur. But even though 70mm film is considered normal stuff for specialized technical cameras, no manufacturer of cameras for the amateur or professional still photographer wants to stick his neck out until the company making the film guarantees to supply it nationally in enough emulsions—and that includes color. Of course, processors must be set up to develop and print it as well. This will take time. But 70mm will simplify the 2 1/4 x 2 1/4 camera and, with the additional exposures, perhaps make interchangeable backs unnecessary. Both Bronica and Hasselblad are known to have 70mm backs in development. The 70mm may also serve to cut down the bulkiness of today's 2 1/4 x 2 1/4 cameras.

## It's all done with mirrors

Lastly, there's the problem of getting the 2 1/4 x 2 1/4 camera up to eye level. All are now designed as waist-level machines. None feels quite as handy at eye level. The Bronica and Hasselblad have magazines at the rear which would get in the way of an eye-level prism. A 45° all-glass prism, not strictly at eye level, is Hasselblad's answer to this problem. Another answer is the use of a mirror prism, which will weigh considerably less than a solid prism large enough to cover the 2 1/4 x 2 1/4 format. The new Porreflex prisms made by Nippon Kogaku for the Mamiya Professional C twin-lens reflex and Rolleiflex do not show as large a focusing image as the full-glass prism, but the price is a fraction of the latter's. The eyepiece is located at the side of the prism rather than in the middle and this might clear the interchangeable backs on the Bronica and Hasselblad.

## All the progress you want

Much of the future of the 2 1/4 x 2 1/4 reflex is, frankly, in your hands. The expensive units are as advanced as they are today because of the dedicated designers and manufacturers who believe in them, and the professionals and semi-professionals who rely on them. If and when the public returns the 2 1/4 single-lens reflex to popularity alongside the 35mm camera, progress will really begin to race.—THE END



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# the MOVIE MAKER

by **MYRON A. MATZKIN**

Here's an easy solution to those problem requests for stills from your movie scenes.



Showing the latest footage of the youngsters to members of the family is almost certain to bring requests for wallet size still photographs of some of the scenes. It's difficult to give an

outright "No" answer. And it's virtually impossible to explain that a snapshot version of a movie frame won't come near the quality of the screen image. In addition, you may find yourself with not just one but a whole raft of requests from various members of the family.

Don't panic—there's a comparatively easy way out that will probably make everyone happy. And you won't have to spend a lot of time and money to do it, either.

Try shooting stills directly from the screen. It's not difficult and it requires no specialized equipment. All that you need is a camera, fast film, tripod, and exposure meter. A cable release helps too, but is not an absolute necessity.

I've found that either a 35mm or 2 1/4 x 2 1/4 camera will do admirably for this work. It can be either a rangefinder or single-lens reflex type.

### Choose a fast film

There are several films you can choose from. Ansco Super Hypan (E.I. 500) is available in either 35mm cartridges or 120 rolls. Kodak Royal-X Pan (E.I. 1600 to 2400) can be readily purchased in 120 rolls or in 35mm bulk for loading your own cartridges. Agfa Isopan Record (E.I. 1200 to 1600) is available in both 35mm cartridges and 120 rolls. The speed of these films depends on how they are developed. For more information on developing, see John Wolbarst's story in the March 1961 MODERN (page 52).

I prefer an elevator tripod since it can be easily adjusted to the height of your projection screen.

Camera placement depends largely on projector-to-screen distance. However, I think you'll find that the best

position for the camera is about one-third the distance from the projector—depending on the focal length of your still camera lens. If you find that you must shoot too close to the screen a telephoto lens may help.

But for exact camera placement you'll have to project the film. Position the camera and tripod at the spot that best fills the negative area. In order to avoid distorting vertical and horizontal lines and at the same time not block the screen image, you'll have to find a compromise position which will probably be just a bit to one side of the projector-to-screen axis.

Once the camera is in place, take a meter reading from the projected image on the screen. (Incidentally, the single-frame feature on your machine isn't much good for this particular project since the heat filter which drops between film and lamp cuts too much of the light intensity.) Take your reading from a dark area.

### A judicious shutter speed

Choose an f-number that will allow a shutter speed of at least 1/25 sec. for scenes with virtually no action. For scenes with action, use a shutter speed of at least 1/50 sec. With fast action where there is a definite change from frame to frame, you need a speed fast enough to catch the individual frame before it leaves the screen and is replaced by another one. However, there's some slight chance of coming up with a blank negative occasionally. You may catch the point in the film transport through the projector where there is no image on the screen. At 1/25 sec. the chances of missing are less, since film projected at 16 fps is on the screen for 1/30 sec. But with a shutter speed of only 1/50 sec., you increase your chances of either missing the image completely or catching only part of it—the result being an underexposed still negative.

Now, switch on the light and stop the projector. Have someone hold a piece of string or a ruler in a vertical position flat against the center of the screen surface. Focus the camera on the string or ruler. Remove the focusing target. You're ready to start shooting. Turn out the lights, start the projector at the beginning of the film, and make your exposures.

The resulting negatives won't do at all for big enlargements. But reason—  
(Continued on page 112)

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4370, 4375, 4380, 4385, 4390, 4395, 4400, 4405, 4410, 4415, 4420, 4425, 4430, 4435, 4440, 4445, 4450, 4455, 4460, 4465, 4470, 4475, 4480, 4485, 4490, 4495, 4500, 4505, 4510, 4515, 4520, 4525, 4530, 4535, 4540, 4545, 4550, 4555, 4560, 4565, 4570, 4575, 4580, 4585, 4590, 4595, 4600, 4605, 4610, 4615, 4620, 4625, 4630, 4635, 4640, 4645, 4650, 4655, 4660, 4665, 4670, 4675, 4680, 4685, 4690, 4695, 4700, 4705, 4710, 4715, 4720, 4725, 4730, 4735, 4740, 4745, 4750, 4755, 4760, 4765, 4770, 4775, 4780, 4785, 4790, 4795, 4800, 4805, 4810, 4815, 4820, 4825, 4830, 4835, 4840, 4845, 4850, 4855, 4860, 4865, 4870, 4875, 4880, 4885, 4890, 4895, 4900, 4905, 4910, 4915, 4920, 4925, 4930, 4935, 4940, 4945, 4950, 4955, 4960, 4965, 4970, 4975, 4980, 4985, 4990, 4995, 5000, 5005, 5010, 5015, 5020, 5025, 5030, 5035, 5040, 5045, 5050, 5055, 5060, 5065, 5070, 5075, 5080, 5085, 5090, 5095, 5100, 5105, 5110, 5115, 5120, 5125, 5130, 5135, 5140, 5145, 5150, 5155, 5160, 5165, 5170, 5175, 5180, 5185, 5190, 5195, 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6860, 6865, 6870, 6875, 6880, 6885, 6890, 6895, 6900, 6905, 6910, 6915, 6920, 6925, 6930, 6935, 6940, 6945, 6950, 6955, 6960, 6965, 6970, 6975, 6980, 6985, 6990, 6995, 7000, 7005, 7010, 7015, 7020, 7025, 7030, 7035, 7040, 7045, 7050, 7055, 7060, 7065, 7070, 7075, 7080, 7085, 7090, 7095, 7100, 7105, 7110, 7115, 7120, 7125, 7130, 7135, 7140, 7145, 7150, 7155, 7160, 7165, 7170, 7175, 7180, 7185, 7190, 7195, 7200, 7205, 7210, 7215, 7220, 7225, 7230, 7235, 7240, 7245, 7250, 7255, 7260, 7265, 7270, 7275, 7280, 7285, 7290, 7295, 7300, 7305, 7310, 7315, 7320, 7325, 7330, 7335, 7340, 7345, 7350, 7355, 7360, 7365, 7370, 7375, 7380, 7385, 7390, 7395, 7400, 7405, 7410, 7415, 7420, 7425, 7430, 7435, 7440, 7445, 7450, 7455, 7460, 7465, 7470, 7475, 7480, 7485, 7490, 7495, 7500, 7505, 7510, 7515, 7520, 7525, 7530, 7535, 7540, 7545, 7550, 7555, 7560, 7565, 7570, 7575, 7580, 7585, 7590, 7595, 7

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For ANSCOCROME, Super Anscochrome Daylight: UV-15, UV-16, 82A, 80(A), No. 10, 81A.

For Kodachrome, Type A: 85(A), 85B, 82C, 81A, UV-15.

For CLOSEUPS: -1, -2, +3.

NEUTRAL DENSITY: 2X, 4X.

For KODACHROME, EKTACHROME DAYLIGHT, Haze, Skylight (1A); 82A, 80B, 81B, 81A, 80C.

For ANSCOCROME, KODACHROME, EKTACHROME TYPE F: 85C, 82A, 82C, 82B.

Coated Uncoated

Ser. IV \$1.54	Ser. IV \$1.15
Ser. V \$1.84	Ser. V \$1.39
Ser. VI \$2.44	Ser. VI \$1.59
Ser. VII \$3.34	Ser. VII \$2.08
Ser. VIII \$5.90	

Sh. Chg. 1 to 4 filters 15c

**OTHER FILTERS IN SERIES SIZES**

Avail. uncd., only

Neutral Density 8X, Ser. Hazo 2A, 81, 81D, Flash 10, UV-17, Infra-Red.

Clip here for this SPECIAL OFFER

Buy at least five filters and close-up lenses at one time and we will supply COATED filters (in cases listed) at uncoated prices, saving you \$5.00 and up on this order alone.

## HIGHEST QUALITY OPTICAL GLASS FILTERS

Save 33% to 50% off comparable list with Spiratone

For all Color and black and white film. Eliminate glare and reflections in scenery, water, show-windows... emphasizes clouds... the ONLY sky filter usable with Kodachrome, Anscochrome, Ektachrome. Polarizing Screens have double threaded rings to allow use of extra filter or closeup lens, handle for convenient adjustment of maximum polarizing effect.

Shipping Charge 15c

Filter	Price	Filter	Price	Filter	Price
Polarizing Filter SER. IV	\$1.54	Polarizing Screen SER. V	\$3.75	Polarizing Screen with Viewer, Pouch SER. V	\$5.99
Polarizing Filter SER. V	\$1.94	Polarizing Screen SER. VI	\$4.75	Polarizing Screen with Viewer, Pouch SER. VI	\$6.99
Polarizing Filter SER. VII	\$3.34	Polarizing Screen SER. VII	\$5.75	Polarizing Screen with Viewer, Pouch SER. VII	\$7.99

**SQUARE LENS SHADES**

Finest quality, fit standard filterholders. Locking Flange for original. List \$3.50 to \$25.50. Ser. V \$1.75 • Ser. VI \$2.25 • Ser. VII \$3.25

**GENUINE FILTERBANK HOLDS 6 FILTERS**

Available in Ser. IV (\$1.00), Ser. V (\$1.00), Ser. VI (\$1.25), Ser. VII (\$1.50).

NOTE: All series accessories fit series filterholders. If you do not have a filterholder, write, naming camera and lens. Ser. V \$1.80, Ser. VI \$1.85, Ser. VII \$3.95, Ser. VIII \$5.50.

**DOUBLE RETAINING RING**

Permits use of two closeup lenses (for extreme close-ups: +2 and +3 make +5), closeup lens and filter (correction, conversion, pola), two filters, two minus lenses at same time. Fits standard filterholders. Ser. C or IV 85c; Ser. V 85c; Ser. VI 95c; Ser. VII \$1.50; Ser. VIII \$2.60.

**STEP-UP RINGS:**

Ser. V to VI	\$1.35
Ser. VI to VII	1.85
Ser. VII to VIII	3.00

**STEP-DOWN RINGS:**

Ser. VI to V	\$1.60
Ser. VII to VI	2.25
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Now available in standard series sizes, to fit all filter holders! Every serious photographer wants to use these famous coated diffusion disks prepared by the world's foremost pictorial photographer for their color slides. Ser. IV \$1.94; Ser. V \$1.84; Ser. VI \$2.44; Ser. VII \$3.34.

## MONOCULARS MAKE LONG TELEPHOTO'S

ON SINGLE AND TWINLERS REFLEX CAMERAS for small budgets

Use as a regular prism monocular, or, with standard adapter, on camera using Series V or VI adapter ring, magnifying subject 6X, 7X and 8X (times 6X, 40X and 64X the area).

Monocular	Resulting Focal Length	Price
35mm Contaflex, others using Ser. V adapter	300mm	\$13.90
35mm Retina Reflex (except F.1.5) others using Ser. VI adapter	300mm	\$14.90
4 x 4 Twinklens Reflex camera, using Ser. V adapter	360mm	\$13.90
2 1/4" up Twinklens Reflex camera, using Ser. V adapter	450mm	\$13.90
7 x 35 Monocular	350mm	\$16.90
8 x 30 Monocular	400mm	\$17.90
7 x 35 Monocular	350mm	\$17.90
8 x 30 Monocular	400mm	\$18.90
7 x 35 Monocular	420mm	\$17.90
8 x 30 Monocular	480mm	\$17.90
7 x 35 Monocular	\$25mm	\$17.90
8 x 30 Monocular	600mm	

Cost of Adapter: Series V \$1.50 (bayonet \$1.65) Series VI \$1.85

Shipping Charge 65c

## CHANGING BAG

Double zippered inner and outer bags—made of the finest cloth—100% light proof even in brightest sunlight. Whether for use in an emergency, with a film torn or pulled off the spool in a 35mm camera, or for reloading film holders or for developing film when no darkroom is available—the changing bag is justly referred to as a "portable darkroom". 17" x 16" working space plus elastic closure.

Professional Model: 27x36" working space, Sh. Ch. 60c \$6.95

Extra Large Model: 36x44" working space, Sh. Ch. 80c \$9.95

Shipping Charge 40c \$3.95

**135mm F2.8 PRESET \$29.95**

For EXAKTA, PRAKTIFLEX, PRACTICA, PENTAX, PENTACON, MIRANDA

Impossible! Too good to be True! We heard and read this often from customers who saw this offer—whoever heard of a good 135mm F2.8 lens for under \$30? Now, three years after their introduction, with thousands of satisfied users having recommended these lenses to thousands of friends, with favorable magazine test reports and high stacks of letters of praise in our files, it's hard for our factory to make these lenses fast enough. Technical data: Fully coated, color-corrected 4-element true telephoto (only 3 1/4") construction, helical focusing from 5 1/2 ft., precision black & chrome metal barrel finished to match the finest cameras; lens openings to f/16; depth of field scale; rear and front caps supplied.

For 135mm F2.8: Leather Pouch \$1.80—Custom Leather Case \$2.80—Series VII filterholder \$3.95. Shpg. Chgs. 75c

**OTHER UNUSUAL LENS VALUES**

All coated, color-corrected

35mm f3.5 pre-set Wideangle for Exakta, Exa, Praktica, Praktiflex, Pentax, Pentacore	\$39.95
35mm f2.8 pre-set Wideangle for Exakta, Exa, Praktica, Praktiflex, Pentacore	\$49.95
135mm f2.8 pre-set Telephoto for Nikon F, Canonflex, Minolta SR, Yashica Pentamatic, Praktica	\$36.95
For Exakta, Praktica, Praktiflex, Pentax, Pentacore, Miranda, Nikon F, Canonflex, Minolta SR, Yashica Pentamatic: 200mm f3.5 400mm f4.5 400mm f5.6 400mm f8.0 400mm f11.0 400mm f16.0	\$54.95

Shipping Charge \$1.00 per lens

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Save 50% off comp. list on the meter that has "everything"!

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INCL. LEATHER CASE & STRAP

FREE DIRECT READING ATTACHMENT WITH SPIRATONE METER AND BOOSTER CIRCUIT, SEE 50c

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Protect your lens from dust, scratches, and damage. Fits Series V, VI, VII adapter ring. Shpg. Wt. 1 lb. \$3.95

**MIRANDA**

Now, three years after their introduction, with thousands of satisfied users having recommended these lenses to thousands of friends, with favorable magazine test reports and high stacks of letters of praise in our files, it's hard for our factory to make these lenses fast enough. Technical data: Fully coated, color-corrected 4-element true telephoto (only 3 1/4") construction, helical focusing from 5 1/2 ft., precision black & chrome metal barrel finished to match the finest cameras; lens openings to f/16; depth of field scale; rear and front caps supplied.

For 135mm F2.8: Leather Pouch \$1.80—Custom Leather Case \$2.80—Series VII filterholder \$3.95. Shpg. Chgs. 75c

All prices include excise tax. Postage and insurance MUST be prepaid, whether shipping weight is stated or not. Check with local post office if uncertain. Over-payment is credited in full. Everything listed is brand new and fully guaranteed against defects. 25% deposit on C.O.D. items marked "Free", "Premium", or "Bonus" MUST be requested at time of purchase. Allow extra postage, handling for foreign orders.

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	35-36 Exp. 6.30	12.00	19.00
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EASTMAN COLOR	35mm 20 Exp. 2.75	5.10	7.50
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PANATOMIC-X	35mm 20 Exp. 1.00	1.85	2.85
PLUS-X	35mm 36 Exp. 1.25	2.40	3.75
TRI-X 28 ft. Bulk	1.35	7.50	12.00
KODACHROME	8mm 25' Dble. Rolls 5.70	11.00	17.50
	8mm 25' Dble. Mag. 8.95	17.40	28.00
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	16mm 100' Dble. Rolls 18.00	35.40	57.50
High-speed EKTACHROME	8mm 25' Dble. Rolls 11.90	23.40	37.50
	8mm 25' Dble. Mag. 14.90	29.40	48.00
	16mm 100' Dble. Bolex 40.00	78.00	125.00
	8mm 100' Dble. Bolex 45.00	84.00	135.00
B&W MOVIE FILM	8mm 25' Dble. Rolls 5.25	9.90	15.50
PLUS X	8mm 25' Dble. Mag. 7.65	14.70	23.50
ASA 80 or TRI X	16mm 100' Rolls 13.20	25.50	41.00
Reversal	8mm Bolex ASA 200	17.25	33.60
ASA 100'			51.00

ADD 5¢ per roll on film for postage and handling.  
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Spot-O-Matic II does the EASY way what high cost devices do the HARD WAY! Electronic engineers tell us that Spot-O-Matic II actually out-performs devices selling for up to \$700.00.

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**\$18.50**  
COMPLETE

100-130 volts AC-DC  
200-280 Volt  
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## PICTURES IN A MOMENT

(Continued from page 92)

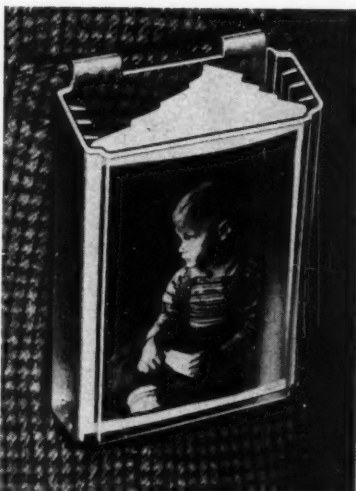
fell to the ground, thereby breaking one of the little plastic hinges.

I exposed, developed and coated two prints and inserted them in the drying compartments. The first one stuck to the box, and the second one stuck to the first, permanently.

(3) The Protek Polaroid Print Holder; price, \$1.35. Bar Products Co., 4803 White Oak Ave., Rockford, Ill.

This also is designed to provide a platform for coating and a safe storage place for wet prints. The box is made of semi-flexible but tough transparent yellow plastic. It is wide open at the top and has a big cutout at the bottom. There are four wide-spaced grooves inside to hold the prints. All this adds up to good ventilation, which promotes rapid drying.

According to the instructions it is possible to put a pair of wet prints, back to back, in each set of grooves. I found that there was an element of risk in this. I had two prints stick face to face, so I would not recommend inserting wet prints back to back in adjoining compartments. However, with



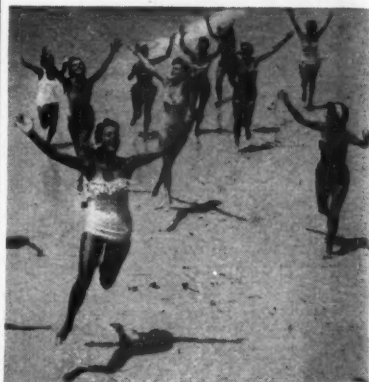
3. The Protek Holder. Primarily a storage and carrying device, it also can be laid flat and serves as a platform for print coating.

only four prints, each in its own grooves, the surfaces were widely separated and quite safe.

The print coating platform is a bit smaller than the prints. This helps to avoid getting it smeared with coating liquid. It also permits coating to the very edges of the print, which is desirable. Oddly enough, the coated edges did not stick solidly to the grooves, although some stuck lightly.

The Protek holder is an ideal place to store uncoated prints for a few minutes until ready to coat. For this purpose you can insert eight prints back to back without danger. It's a very useful gadget, worth having.—THE END

# HOORAY FOR OZZIE!



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by Ozzie Sweet

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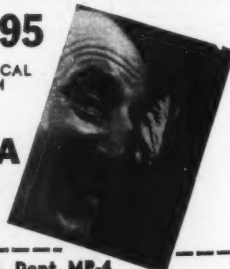
How does a free lance photographer achieve such success? What methods does he use to relax his subjects, to impress and sell editors? How does he make over \$5,000 from one shot? Here you will find the thinking, experience, and execution which goes into the making of saleable photographs. There have been a number of books to help amateur and professional sell their pictures, but none have offered the approach presented by *My Camera Pays Off*. It details the why, when, and wherefore of pictorial illustration—from concept to publication.

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	10 or more rolls	4-9 rolls	1-3 rolls
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3-ROLLS ... 1.50  
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3-ROLLS ... 1.80  
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### WATER'S EDGE: SOUND

(Continued from page 79)

poser Frank Lewin create special music for *Water's Edge*. If you have a musically inclined friend you can collaborate on an original composition for your film, and you don't need a full orchestra to make the recording. Some of the best films in recent years have had musical sound tracks played by a single instrument—zither, drum, piano, or guitar.

The recording method you choose depends on your budget. The most economical is a tape recorder synchronized with your silent projector. Several devices are sold to accomplish this. The system is acceptable for the most important amateur film festivals here and abroad.

Sound on film is the professional approach, but more expensive. Magnetic sound—a recording on an iron oxide strip coated on one edge of the film—is available in both 8 and 16mm. Synchronization never varies from showing to showing. Magnetic sound projectors allow you to record the sound at home and play it back on the same machine.

The most universal system is optical sound on film—a photo image of the sound itself. You can make your own tape for later transfer to an optical track. However, the final recording and transfer to the movie must be done by a laboratory. This is the most expensive system and available for only 16mm and larger size film. It does allow your film to be played anywhere on any optical projector, the type of sound machine most generally available.

### WATER'S EDGE: ACTION

(Continued from page 79)

Second, action can be varied by a change of direction. For most shots action should change direction within the frame so that there won't be a startling change from one cut to another. But don't discount the shock value of a radical shift in direction—if used sparingly. Wildi used the waterfall shot, *third from top, page 79*, to provide an arresting variation from the normally horizontal flow of water in the film.

Third, action can be varied by shooting subjects that contrast with yet relate to the rest of the film. The

(Continued on opposite page)

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## WATER'S EDGE: ACTION

(Continued from opposite page)

sea gull, *second from bottom*, page 79, shows how this kind of subject adds variety to the action of the film. Practically all the footage before the sea gull shot consists of water in some form. It relieves the sameness of image by presenting a new, but related idea, since gulls are usually found close to water. The gull, as we noted previously, was shot at slow motion speed and tightly framed to exclude all other images.

## WATER'S EDGE: EDITING

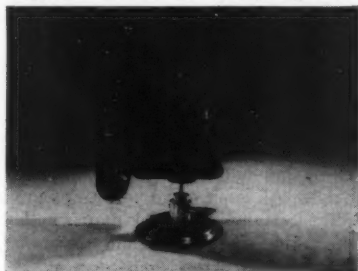
(Continued from page 80)

*top page 80*). The pond helped the sequence by adding variety to the screen image.

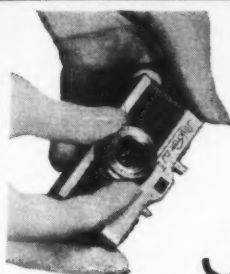
**Timing:** The varying of screen time for each shot is another way of adding pace to your film. There are no rules for scene length. However, in making the rough cut of the film, remember that audiences need more screen time to absorb details in long shots than in medium shots or close-up shots. Wildi projected his film many times before determining the final length of cuts. He avoided cutting two scenes together with precisely the same screen time. As you can see from the sequence on *pages 80 and 81* (from bottom to top on both pages), he varied the time—first decreasing the scene length, then reversing his field and gradually making shots longer.—THE END

## How to do it

When you need a low tripod to shoot pictures from a table top, or from the floor, make one from a metal ash tray. Just drill a hole in the center of the tray, and attach the tilting top from



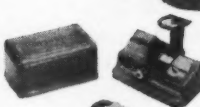
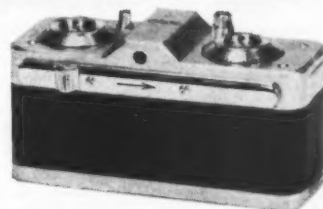
your regular tripod with a short ¼-in. bolt. An ash tray of ordinary size is large enough to hold small cameras without tipping, and permits shooting from a very low level.—Ken Murray



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- Its many other advantages make the Mikroma II an ideal family camera

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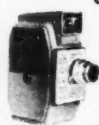
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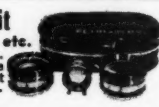
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## TITLING

(Continued from page 75)

the starting position, and lock the column. Make 1 sec. worth of single-frame exposures. Crank the camera down slightly, about 1/4 to 1/2 turn, and lock it. Make a single-frame exposure. Adjust focus as with a titler.

**Superimposed titles:** Here's where you place your title on a photographic background. It can be no more involved than setting up letters on a black-and-white or color print. But you can also utilize slides—especially those that you might have shot when you made your movie. For this you'll need either a regular back-projection or ground-glass screen, as shown in the photo below right, page 75, and a slide projector.

Place the slide front to back in the projector and focus it on the screen. Someone will have to focus the projector while you watch the side of the screen facing the camera for sharpness. Place the title on the screen, as shown in the photo, and line up your camera. Take a reflected light meter reading for high-lights and set your camera for 8 fps shooting. Make the exposure.

The title can also be superimposed on live footage. For a full explanation, see the story on *Water's Edge*, special effects section, page 78.

What you shoot is just as important as how you shoot it. Titles can be used in several ways—as opening sequences to your film, for credits, to supply missing information within the film. And every movie should have an end title.

But no matter where you use titles, they should be as brief as possible. Often, one or two words will convey everything a title should say. *Water's Edge* is an example of good title writing. It hints at subject matter and also the approach of the film.

A travel film where you journeyed by car could be called simply *Highways*. A birthday party movie might have just the age of the child as the title.

Titles in the body of the film to explain missing information should also be brief.

## Neither long nor lavish

Screen time for titles must be kept to the minimum required to read them. Five seconds is usually more than enough for a three-word title—including fade-in and fade-out.

Above all, don't make your titles pretentious. Unless the film matches the title, avoid using quotes from literature. They may be better than your movie.

There are many types of lettering to choose from—flat, three-dimensional, self-adhering, and textured. A visit to an art supply store or photo dealer may turn up just what you need.—THE END

## SPLICING

(Continued from page 82)

Which is better? It depends on the amount of splicing experience you have. Tape splicing can be learned more quickly. A splicer should be purchased on the basis of operational ease and speed, quality of construction of the unit, precision of the splice produced, and dependability.

First, there's no saving in time in either system. It takes just about as long to make a tape splice as a cement splice.

Second, cement splicing does require care in scraping the emulsion from the film base. Gouging into the base can weaken the splice.

With tape, there's no scraping. However, care must be exercised in placing tape over the film or else sprocket holes in the tape won't align with sprocket holes in the film. Tapes are available in precisely the right size needed to make a single splice. On 16mm both sides must be spliced. While a single tape will do for 8mm, it's safer to tape both sides.

### With or without flashes

Third, splices made with cement often show light flashes on the screen. This won't happen with Mylar if the splice is made correctly. Ends are joined squarely to each other and no light can penetrate.

Fourth, it's virtually impossible to use editing gloves with Mylar since the paper backing must be grasped between the fingers. This means there's a chance of getting finger marks on the film. Editing gloves can be used easily with any cement splicer.

Fifth, cement splicers can go out of alignment. However, at least one machine can be obtained for readjusting alignment.

While there's little to go out of alignment on tape splicers, only the sprockets hold film in place. Occasionally, where sprockets are somewhat too large, they can tear film sprocket holes.

Sixth, in Mylar's favor is the fact that torn film can be repaired with Mylar tape—without loss of frames. With cement splicers a torn film must first be cut. To repair with Mylar tape, you place the tape over the damaged area. Mylar tape is also available in rolls for repairing large areas.

Finally, many film laboratories will not accept for duplication film that has been spliced with Mylar. They feel there's a risk of splices being stripped off by printing machines.—M.A.M.



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EKTACHROME	8mm Mag. Dble.	17.30	33.60	51.00
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KODACHROME	16mm Roll 100'	22.50	44.90	72.50
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3 1/2 x 3 1/2 MIN. OF 15 ASSTD. **\*20¢ each** or any 4—1.00 **2.99**

### FROM YOUR 35mm SLIDES OR KODACOLOR NEGATIVES 3 1/2 x 5

3 1/2 x 5 MIN. OF 12 ASSTD. **25¢ each** or any 3—1.00 **2.99**

### FROM COLOR SLIDES

4 x 5 5 x 7 8 x 10  
50¢ ea. 85¢ ea. 1.75 ea.  
5 for 2.00 3 for 2.00 2 for 3.00

### KODACOLOR ENLARGEMENTS

FROM ANY SIZE NEGATIVE  
5 x 7 8 x 10  
69¢ ea. MINIMUM ANY 3 **\*2.25** MINIMUM ANY 2

### 35mm COLOR SLIDE DUPLICATING

**\*15¢ each mounted**  
MIN. OF 20 ASSTD. **\$2.99**  
OR ANY 5 FOR \$1.00

### 35mm BLACK & WHITE FILM SPECIAL

YOUR CHOICE  
KODAK } 20 Exp. 7 for 2.00  
TRI-X } 36 Exp. 6 for 2.25  
PLUS-X } 36 Bulk 1.25  
PAN-X } 100 Bulk 3.50

ANSCO } 20 Exp. 5 for 2.00  
SUPERHYPER } 36 Exp. 4 for 2.25

### KODACOLOR FILM PROCESSED

Including 1 Jumbo print from each negative  
Per 8 Exp. roll—2.25 Per 16 Exp. roll—3.25  
Per 12 Exp. roll—2.95 35mm 20 Exp.—2.95

### BLACK & WHITE PROJECTION SLIDES

From your developed 35mm negatives. Bl. & Wh. positive slides, mounted ready for projection.  
20 Exp. Roll **1.00** 36 Exp. Roll **2.00**  
Developing of film, 50¢ addl.

### KIMAC PROTECTORS

Quick, low-cost slide protection. Prevents scratches, fingerprints and abrasion marks. Fits all standard cardboard mounts.  
2" x 2" (reg. 2.75) 100 ..... **NOW 1.88** 2 1/4" x 2 1/4" (reg. 4.00) 100 ..... **2.99**  
2" x 2" (reg. .79) 20 ..... **.50** Stereo (reg. 3.75) 100 ..... **2.99**  
2" x 2" (reg. 25.00) 1000 ..... **16.50**

### ANSCOCHROME \* KODACHROME \* EKTACHROME

#### PROCESSING

35mm (20 exp.) mtd., 828 bantam mtd. **\$1**  
8mm 25' roll, 120-620-127 mtd.  
35mm 36 exp. mtd. 1.75 120-620-127 unmtd. .75  
35mm Stereo 15 8mm 25' magazine .75  
sets mtd. 1.75 15mm 50' mag. .75  
35mm Stereo 28 15mm 50' roll 1.50  
sets mtd. 2.75 15mm 100' roll 2.50

35mm BLACK & WHITE SPECIAL COMBINATION  
Fine grain developed and 1 each Jumbo enlargement, including FREE FILM REPLACEMENT

20 exp. roll Complete **1.50**  
36 exp. roll Complete **2.50**

### 35mm KODACOLOR FILM

20 Exp. roll, including developing and 1 each Jumbo print of every frame. COMPLETE ..... **3.95**

Positive color transparency projection slides made from your 35mm Kodacolor negative. 20 exp. roll ..... **\$1.50**

### EXCLUSIVE WITH US

## STYLOPHOT

A new concept in a 16mm (Made in France) subminiature... perfect for snapshots in color or black and white. Features... Double coated sharp lens, permitting enlargement. Single shutter speed at 1/50th. Automatic film transport, shutter cocking. Automatic exposure counter—18 pictures—16mm. Uses standard perforated black and white or color films. **\$995**  
Pocket clip—very compact.

Black & white, Plus-X, Tri-X—18 exposures, including negative developing, 1 Jumbo enlargement of each frame.

Box of 2 rolls ..... **\$2.98**

Kodachrome, Anscochrome or Super Anscochrome—18 exposures, including developing, cardboard mounting, ready for projection. Box of 2 rolls **\$2.98**



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BOX 35064, LOS ANGELES

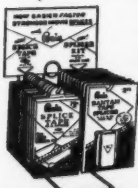


LOOK FOR THIS DISPLAY TODAY!

## For Easier STRONGER movie splices

Professionals and amateurs agree ... splicing was never easier ... no scraping, cement or clamping with BAIJA SPLICE TAPE. Once applied it becomes a permanent part of the film. Made of DuPont MYLAR, stronger than the film itself.

**BAIJA BANTAM SPLICER**  
Automatic butt splicer for 8 & 16mm. Compact, made of Aluminum with convenient tape storage compartment, and supply of SPLICE TAPE. **2.95**



**BAIJA SPLICE TAPE**  
For either 8 or 16mm, including sound. Can be used with any dry type splicer made. **79c**

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tomorrow's movie editor  
**Baia**  
'reviewer'



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- Slip In Loading—No Threading
  - Automatic Focus and Framing
  - Ultra Compact, With Big 3 x 2 1/4 Screen
  - One Step, Automatic Butt Splicer
  - Frame Marker; 400' Capacity Rewinds
- BAIJA CORP. JACKSON R-7, MICH.

## MOVIE LABS

(Continued from page 85)

want them and how long they are to last. Most fades last 2 sec. Lap dissolves require A & B breakdown. There is an overall charge for setting up the machinery required and then a smaller charge for each effect. Most labs will make fades and dissolves only on 16mm film. A few will make them for both 8 and 16mm. Some labs offering titling service make dissolves and fades only on titles.

**Charges for fades and dissolves in the body of an 8mm film are usually much higher than for 16mm.** You can circumvent the premium charge by instructing the original film processor not to slit the film and have the lab make effects on unslit 16mm length. However, you must plan for the procedure when you shoot.

**Optical printing:** Copies of your film are made in a machine that works in the same way as a still enlarger: the image of the original is projected onto the second film. Optical prints offer maximum quality for reproductions from the original since corrections for under- or overexposure and color from scene to scene can be made. Charges are per foot.

**Duplicating:** Here copies of the original are made by contact printing. Unlike prints made in an optical printer, the emulsion side is reversed and duplicate film cannot be intercut with images on the original film since one or the other will be out of focus. Some exposure correction is possible.

### A range of special services

**Color correction:** Unusual color renditions caused by lighting of a slightly different color temperature than required by the film can be best corrected in an optical printer. Correction for poor color rendition can be adjusted from scene to scene. Some processors offer to correct color rendition of tungsten film inadvertently used in daylight.

**35mm slides from movie frames:** Many laboratories will make slides from either 8 or 16mm movie frames. Results are better from 16mm since it requires less magnification.

**16 to 8mm reduction:** This is one way to take advantage of scenes you need for an 8mm movie that may have been shot by a friend on 16mm film. Results for well-exposed, sharp 16mm film reduced to 8mm in an optical printer can be superb. Charge may be either per foot of 16mm or per foot of 8mm, depending on the lab.

**8 to 16mm enlargement:** Most labs with an optical printer can enlarge your 8mm film to 16mm—but don't recommend it. All imperfections—scratches, soft focus, for example—are magnified

(Continued on page 110)

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# ZOOM Home Movies



With The Sensational  
**MANSFIELD HOLIDAY**  
**ZOOM REFLEX**  
**8mm CAMERA**



**UNDER \$100.00**

So Easy To Operate ...  
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- Smooth, instant wide angle-to-telephoto zoom action!
- Built-in electric eye meter gives correct settings everytime!
- Super-fast f/1.8 lens!
- Adjustable focusing eye piece!
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Zoom Reflex Movie Camera  
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Quantities On Some Items Limited! Time Payments.

## BRAND NEW LATEST RETINA REFLEX S



WALL ST. PRICED

**112<sup>50</sup>**

WITH F2.8 XENAR LENS

Retina Reflex S 139.50  
with 50mm F1.9 Xenon Lens. 117.50  
Retina 1115, F2.8 87.50  
Retina 1115, F1.9 117.50  
Retina 1115, F2.8 89.00

Above sold only with Leather Case & B.C. Flashgun, Add. 16.95

Cameras with "W.S.C." Serial Number & Import Certificate, Add. 14.50

Retina Reflex, F2.8	89.50	135mm F4 Tele.	79.50
35mm F4.0	29.50	Close-Range Finder Kit	25.00
35mm F4.0	29.50	Close-Up Kit "C"	29.50
35mm F4.0	29.50	Microscope Kit	42.50
35mm F4.0	29.50	Right Angle Finder	13.50
35mm F4.0	29.50	Close-Up Lenses, N	7.50
35mm F4.0	29.50	Close-Up Lenses, R	16.50
35mm F4.0	29.50	50mm Auxiliary Lens	9.50
35mm F4.0	29.50	35-80 Optical Finder	9.50

## MORE SELECTED VALUES ALL FAMOUS BRANDS

YASHICA PENTAMATIC F1.8 Auto, NEW	101.95
YASHICA LYNX F1.8 Yashinon, NEW	68.50
HEILAND PENTAX H-2 50mm F2 Auto Takumar, USED	99.50
PETRI PENTA 50mm F2 ORRIKOR, NEW	69.50
MIRANDA D, PENTA PRISM 50mm F1.9 Auto Soligor, NEW	Very Low Price On Request
MIRANDA S 50mm F2.8 Soligor, NEW	58.50
PENTACON 50mm F2 Preset Biotar, NEW	79.50
MINOLTA SR-1 F2 Auto Rokkor, NEW	112.50
BESELER-TOPCON-B 50mm F1.8 AUTO TOPCOR, USED	159.50
NIKON F 50mm F1.4 AUTO NIKKOR, USED	259.50
CANONFLEX F1.8 AUTO CANON, USED	169.50
EDIXAFLEX 50mm F2.8 AUTO WESTENAR, NEW	99.50
EDIXAFLEX LM 50mm F2 PS Biotar, Lightm'r., NEW	109.50
EDIXA REFLEX D 50mm F1.9 AUTO XENON, NEW	149.50
DEJUR DEKON 50mm F2.8 LENS, NEW	54.50
EXA II F2.8 AUTO TESSAR, NEW	89.50
EXA MX F2.9 P.S. PRESET MERITAR, NEW	34.95
CONTAFLEX SUPER 50mm F2.8 AUTO TESSAR, USED	134.50
PRAKTINA FX F2.8 Auto Tessor, USED	79.50
PRAKTICA FX-3 F2.8 Tessor, NEW	52.50
LEICA III G F2 Summicron, USED	179.50
NIKON S-2 F1.4 NIKKOR, USED	129.50
CANON VI F1.8 CANON, NEW	169.50
CANON F F1.8 CANON, NEW	139.50

ABOVE SOLD ONLY WITH LEATHER EVEREADY CASE, & BC FLASHGUN, 16.95

## CLOSE-OUT BRAND NEW DISCONTINUED NIKKOR LENSES

For Leica, Canon, Nicca, etc. Wall St. Price

25mm F4.0	89.50	85mm F1.5	154.50
28mm F2.8	87.50	105mm F2.5	79.50
35mm F3.5	46.50	135mm F3.5	79.50
35mm F2.8	57.50	85mm F2.0	79.50
35mm F1.8	79.50	85mm F1.5	154.50
50mm F1.4	87.50	135mm F3.5	89.50
85mm F2.0	99.50		

## NIKOR MOVIE LENSES

6.5mm F1.9	45.50
13mm F1.9 Focusing Mount	24.50
38mm F2.5 Focusing Mount	39.50
38mm F2.5 Rotar	14.50
*25mm F1.4 Focusing Mount	77.50

(\* for 8mm) (\*\* for 16mm)

## BRAND NEW LATEST MINOLTA SR-1 OUTFIT

Wall St. Priced **154<sup>50</sup>**

- Minolta SR-1 Camera
- Eye Level Penta Prism
- Instant Return Mirror
- F2 Auto Rokkor lens
- 135mm F2.8 P.S. Sonnar Telephoto
- B.C. Flash and Bracket
- Leather Case

100mm F2.5 Auto Rokkor Instead of Travenon, Add. 29.50

## BRAND NEW POLAROID OUTFITS

GET FINISHED PICTURES IN JUST 10 SECONDS!

MODEL 900	99.50
ROB Outfit	79.95
95B Outfit	99.50
110B Outfit	144.50
PHOTO ELECTRIC SHUTTER	19.50

Outfits include Leather Compartment Case, Flashgun, Exposure Meter and Auto Self-Timer. Everything you need to take PICTURES IN A MINUTE!

MODEL 79.50	Plus your model 110A
99.50 - Your 80	84.50 - Your 150
89.50 - Your 95	79.50 - Your 800

## BRAND NEW AUTOMATIC PRAKTIKA FX-3 Outfit

WALL ST. PRICED **89<sup>50</sup>**



## HERE'S WHAT YOU GET!

- Brand new Automatic Praktika FX-3
- Optical Waist Level & Sports Finder
- 50mm F2.8 Automatic Westernar Lens
- 135mm F3.5 Preset Tele Lens
- Extension Tube Set for Close-ups
- B.C. Flashgun
- Leather Case

Above outfit available with 50mm F2.8 Automatic Tessor or 50mm F2 Auto Westernar Lens Add. 9.50

Zeiss Eye Level Penta Prism Finder for Praktika FX2 & FX3 19.50

35mm f2.8 Auto Schneider Curtagon Wide Angle **58<sup>95</sup>** Each

Auto Lenses for Praktika FX-3, Asahi Pentax, Heiland Pentax, Edixa, Pentamatic F, FW, etc.

## PRAKTINA FX 36<sup>85</sup> BODY ONLY



NO LENS OR FINDER BRAND NEW

## LENSES & ACCESSORIES

35mm F2.8 Flektagon automatic	79.50
50mm F2.8 Tessar automatic	49.50
55mm F1.9 Quinon automatic	74.75
58mm F2.0 Biotar automatic	59.50
75mm F1.5 Biotar preset	139.50
135mm F4 Zeiss Triotar preset	49.50
135mm F4.5 Travegon	34.50
180mm F3.5 Tolmeger preset	64.50
180mm F4.5 P.S. Westernar	39.95
200mm F4.5 Quinar preset	74.95
200mm F5.5 Tele-Sonnar preset	89.50
300mm F4.5 P.S. Tele Megor	79.50
400mm F5.5 P.S. Tele Megor	89.75
Waist Level Finder	12.00
Range Finder Insert	7.50
Exposure Meter Prism	42.50
Prism Finder	19.95
Magnifying Focusing Eyepiece	24.50
Folding Bellows	19.50
Novo Flex Bellows	34.00
Extension Tube Set	9.50
Microscopic Eyepiece	32.50
Rapid Release Spring Motor	49.50
50 ft. bulk film mag.	47.80

## WALL ST. MONTHLY SPECIAL



## 135mm F2.8 PRESET SONNAGAR 5 ELEMENT TRUE TELEPHOTO LENS

Wall St. Priced **47<sup>50</sup>**

- Extremely Sharp
- Fully Color Corrected
- Latest Black Anodized
- Compact Only 3 1/4" High
- Feather Weight

Fitted Leather Case - \$2.95

Available for Nikon F, Praktina, Heiland Pentax, Exakta, Topcon, Miranda, Canonflex, Canonex, Eca, Pentacore, Praktica, Etc., etc.

## ALL BRAND NEW MIRANDA OUTFIT WALL ST. PRICED 89<sup>50</sup>



## HERE'S WHAT YOU GET:

- Miranda 9 Camera
- Waist Level Viewfinder
- 50mm F2.8 Preset Lens
- 135mm F2.8 P.S. Sonnar
- B.C. Flash & Flashgun Bracket
- Leather Eveready Carrying Case

MIRANDA D Instead of S add 24.50

50mm F1.9 auto Soligor Instead of F2.8 add 39.50

Penta Prism Finder Instead of W.L., add 12.50

## BRAND NEW EXAKTA VXIIA



BODY ONLY

(No Lens or Finder)

EXA I BODY, NEW 22.95

EXAKTA VX BODY, USED 64.50

## NEW LENSES & ACCESSORIES

Waist Level Finder	9.50
135mm F4.5 Zeiss Triotar	28.50
135mm F4.5 Zeiss Triotar	39.95
Exa Eveready Case	5.95
Exakta Eveready Case	8.95
28mm F4 Auto Curtagon	99.95
35mm F2.8 Auto Flektagon	84.95
35mm F3.5 Auto Travenon	38.95
40mm F2.8 Macro Kilar used	89.50
50mm F2.8 Auto Quinar	12.50
50mm F2.8 Tessor, Preset	29.50
50mm F2.8 Tessor Automatic	39.50
58mm F2 Zeiss Biotar, P.S.	49.50
58mm F2 Automatic Biotar	59.50
50mm F2.8 Preset Rokkor	24.50
50mm F1.9 Auto Xenon, used	84.50
85mm F2 Preset Kallimar	39.50
85mm F2.8 Preset Travenon	39.50
100mm F2.8 Preset Volar	29.50
135mm F3.5 Preset Volar	24.50
135mm F3.5 Preset Primotar	34.50
135mm F3.5 Auto Tele-Xenon	79.95
135mm F2.8 Auto Quinar	109.50
150mm F3.5 Tele Megor	29.50
180mm F3.5 Preset Volar	24.50
180mm F4.5 Angenieux	59.50
200mm F2.8 Prominar	139.50
200mm F3.5 Preset Picon	37.50
200mm F3.5 Preset Jupien	39.50
250mm F3.5 Preset Tele-Megor	44.50
300mm F5.5 Preset Rokkor	89.50
360mm F5.5 Tele-Kenar, P.S.	129.50
400mm F5.5 Tele	89.50
400mm F5.5 Volar	37.50
400mm F5.5 Volar	37.50
400mm F7.5 Astronar	89.50
400mm F5.5 Rokkor	89.50
NEW 180mm F2.8 PS Sonnar	210.00
NEW 300mm F4 PS Sonnar	295.00
Novoflex Bellows (Ebal)	26.50
Novoflex Bellows (Ebal)	26.50

Dr. Weith Convertible Lens 175mm F2.5; 225mm F4.5; 250mm F5.5; 315mm F6.3 - 119.50

## ALL BRAND NEW PETRI PENTA OUTFIT WALL ST. PRICED 89<sup>50</sup>



## HERE'S WHAT YOU GET:

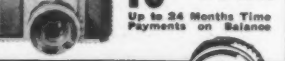
- Petri Penta Camera
- Eye Level Penta Prism Focusing
- Rapid Return Mirror
- 50mm F2 Orrikor Lens
- Extension Tube Set for Close-ups
- B.C. Flashgun
- Leather Eveready Case

## BRAND NEW LATEST HEILAND PENTAX H-2

with 50mm F2 AUTO TAKUMAR LENS

WALL ST. PRICED **169<sup>50</sup>** DOWN

Up to 24 Months Time Payments on Balance



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## KODACHROME

(Same prices apply for Anscochrome & Ektachrome)

	3 Rolls	10 Rolls
20 Exp. 36 Exp.		
(FP) .....	\$8.60 \$12.35	\$24.50 \$36.50
(FF) .....	6.95 11.25	20.50 32.50

## SUPER ANSCOCHROME

(FP) .....	8.95 13.85	29.00 39.50
------------	------------	-------------

## KODACHROME MOVIE FILM

With Processing Included  
(FP) FACTORY PACKED OR  
(FF) FACTORY FRESH (Respoled)

	3 Rolls	10 Rolls
Kodachrome, Anscochrome 100 ft. ....	\$10.00	
8mm Roll 25' dbl. (FP) .....	\$8.95	\$29.25
8mm Mag. 25' dbl. (FP) .....	10.95	37.00
16mm Roll 100' (FP) .....	24.60	78.50
16mm Mag. 50' (FP) .....	16.85	54.50

## BLACK AND WHITE MOVIE FILM WITH PROCESSING

ASA 50

8mm 25' dbl. roll .....	\$1.15
8mm Mag. ....	1.75
16mm 100' roll .....	2.50
16mm 100' sound ASA 24 .....	2.50
16mm 50' Magazine .....	1.90
Bolex Spool 100 ft. B&W .....	5.00

With purchase of 5 rolls, 1 roll free.

## B & W 35mm Film 100' Roll

Negative film outdated .....	\$1.25
------------------------------	--------

## ROLL FILM

127, 120, #20, 110, 616, Black and White	
ASA 80-5 for .....	\$1.00
20X 35mm B&W ASA 50-4 for .....	1.00
30X 35mm B&W ASA 50-3 for .....	1.00

## KODACHROME PROCESSING

8mm Roll .....	\$ .75
8mm Mag. ....	.50
16mm Mag. 50' .....	1.00
16mm x 100' Roll .....	2.50

Money must be included with order.

## 35mm COLOR

35mm x 20 exp. w/mounting .....	\$1.50
35mm x 36 exp w/mounting .....	2.50
35mm x 15 exp. Stereo w/mounting .....	2.50

## MOVIE FILM SPECIAL—ASA 50

4 25' double 8mm on camera spools .....	\$ 1.79
16 rolls as above .....	5.95
64 rolls as above .....	22.00
15 16mm 25' rolls .....	2.75
27 rolls as above .....	4.75
54 rolls as above .....	8.75
15 16mm 50' rolls .....	5.95
27 rolls as above .....	10.75
54 rolls as above .....	19.50
400' 8mm or 16mm .....	3.60

## NO PROCESSING ON ABOVE

## ANSCOCHROME MOVIE FILM

(ASA 32)

PRICE INCLUDES PROCESSING	
8mm roll .....	\$2.75
8mm mag. ....	3.50
16mm mag. ....	4.50
16mm 100 ft. ....	7.50
8mm Bolex .....	6.00

Please specify indoor or outdoor

## AVAILABLE IN 8mm and 16mm

## THE FOLLOWING FULL VERSION REELS

The 8mm is approximately 200 ft. and 16mm approximately 400 ft. each reel.

## Religious Films Available

Life of Christ .....	7 reels
Crown of Thorns .....	8 reels
St. Anthony of Padua .....	8 reels
Messenger of the Blessed Virgin .....	9 reels
Sound .....	\$15.00 per reel
8mm .....	\$ 7.50 per reel

## HAL ROACH COMEDIES—

Snub Pollard & other famous stars, full version—available in 8mm approx. 200 ft. \$5.00 per reel—16mm \$10.00 silent per reel and \$12.50 sound. Approx. 400 ft.

## ORIGINAL OUR GANG COMEDIES—

available in 8mm and 16mm \$5.00 for 8mm approx. 200 ft. \$10.00 per reel for 16mm silent approx. 400 ft. per reel—available in 1 and two reels.

## PRIZE FIGHTS

## HEAVY WEIGHT FEATHER WEIGHT LIGHT WEIGHT

Full Version	
Available 200' .....	8mm \$ 7.50
Available 400' .....	16mm \$15.00

Fights From Early Days Till Present

## ASTRA PHOTO PRODUCTS

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**OPEN EVENINGS UNTIL 6**  
**OPEN SATURDAY**  
**PLEASE INCLUDE POSTAGE**

## MOVIE LABS

(Continued from page 108)

somewhat more than 4X. It's not worth the expense unless the footage is required for a 16mm film and cannot be duplicated in any other way.

**Cleaning and repair:** Scratches that don't cut through the emulsion, tears and brittleness can be remedied. Some labs will repair and clean old film to the point where a good copy can be made from it.

**Preservation:** Special treatment for your film is offered that will lengthen its life, and prevent fungus and overly moist or dry air from affecting it.

**Magnetic striping:** If you have an 8 or 16mm magnetic sound projector, labs throughout the country will place magnetic oxide stripe on one edge of the film required for adding sound to your movie. Striping width varies from 30 to 100 mils. The smallest width is usually applied to 8mm film, while the 100-mil width is used on single perforated 16mm film. The widest stripe provides the best sound. Charges are according to width of stripe and number of feet striped.

**Sound recording:** Labs offering this service will transfer sound from magnetically striped film to an optical sound track. This requires a print or duplicate of the film with the stripe. Some labs will also transfer sound on tape to either magnetic or optically striped film. Sound is filtered to eliminate as much distortion as possible. Charge is usually per foot.

Before sending your film to a laboratory, it's best to send for literature describing their services and costs. A list of addresses for the labs in the chart on pages 84 and 85 follows:

## NORTHEAST

Arco Movie Films, 8616 Fourth Ave., Brooklyn 9, N. Y.

Cineque Colorfilm Labs, Inc., 424 E. 89 St., New York 28, N. Y.

Commercial & Home Movie Service, Inc., 727 N. 19 St., Allentown, Pa.

Criterion Film Labs, Inc., 33 W. 60 St., New York 23, N. Y.

Dephore Studios, Inc., 782 Commonwealth Ave., Boston 15, Mass.

Eastman Kodak Co., 343 State St., Rochester 4, N. Y.

Kin-O-Lux, Inc., 17 W. 45 St., New York 36, N. Y.

Lab TV, 723 Seventh Ave., New York 19, N. Y.

Lord Film Labs, P.O. Box 243, New York 51, N. Y.

Peerless Film Processing Corp., 165 W. 46 St., New York 36, N. Y.

Permafilm, Inc., 723 Seventh Ave., New York 19, N. Y.

Rapid Film Technique, Inc., 37-02 27 St., Long Island City 1, N. Y.

Rolab Studios, Sandy Hook, Conn.

Stahl Editing & Titling Service, 33 W. 42 St., New York 36, N. Y.

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Vacuume Corp., 446 W. 43 St., New York 36, N. Y.

Frederick F. Watson, Inc., 202 E. 44 St., New York 17, N. Y.

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## MID-WEST

Bonine Film Laboratory, 2003 Forest Ave., Des Moines 11, Iowa.

Cine-Graphic Film Lab, Inc., 1720 Olive St., St. Louis 3, Mo.

Geo. W. Colburn Laboratory, Inc., 164 N. Wacker Dr., Chicago 6, Ill.

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Title-Craft, 1022 Argyle St., Chicago 40, Ill.

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Southwest Film Laboratory, Inc., 3024 Ft. Worth Ave., Dallas 11, Texas

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(Continued on page 112)

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## THE MOVIE MAKER

(Continued from page 96)

ably acceptable wallet size prints can be made from them.

You might also use the system for making a series of photographs of unedited footage from which initial rough editing can be done. It will save wear and tear on your footage and provide an easily manageable device for determining order of scenes. Final editing, however, should be done on the footage itself.

How well does shooting stills from the screen work? Turn to the story on Ernst Wildi's film, *Water's Edge* (page 76) and see. That's the way we shot the illustrations.—THE END

## MOVIE LABS

(Continued from page 110)

Hollywood Valley Film Labs, Inc.,  
 12546 Ventura Blvd., Studio City, Calif.

Lord Film Labs, P.O. Box 4125, Valley  
 Village Station, North Hollywood, Calif.

Multichrome Laboratories, 760 Gough  
 St., San Francisco 2, Calif.

Peerless Film Processing Corp., 959  
 Seward St., Hollywood 38, Calif.

Permafilm of California, Inc., 7264 Mel-  
 rose Ave., Los Angeles 46, Calif.

Photo-Tech Laboratories, 200 E. First  
 South, Salt Lake City 11, Utah

Thoro Products Co., P.O. Box 567,  
 Reseda, Calif.

Western Cine Service, Inc., 312 S. Pearl  
 St., Denver 9, Colo.—THE END

## TOO HOT TO HANDLE

(Continued from page 49)

1960 issue there's a blank space under the entry for rangefinder in reference to the Miranda Automex. Which issue is correct?—L. Flannery, Toronto, Ontario. Actually, we were right both times. The Miranda people have been debating whether to put a rangefinder on the Automex and some models were produced with and some without this feature. But the company now advises us that all the Automex cameras will be equipped with split-image rangefinders. We will be testing the camera as soon as we get a working model.

Would the Minolta Autocord 2½ x 2½ twin-lens reflex be suitable for Kodachrome shots of weddings? Would it give sharp enough negatives for enlargement to 5 x 7 or 8 x 10?—L. H. Cool, Jr., Platte, S. Dak. Yes.

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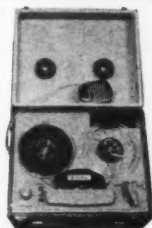
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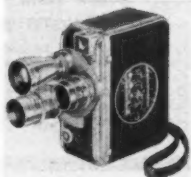
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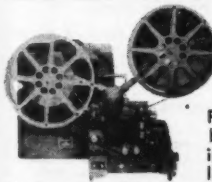
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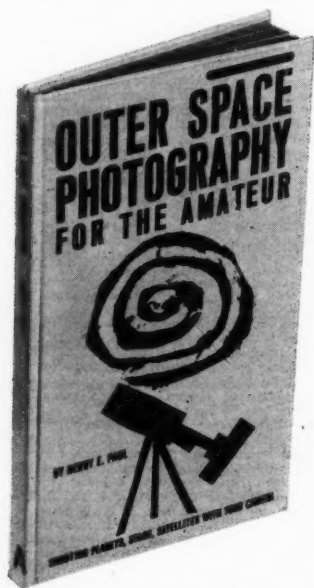
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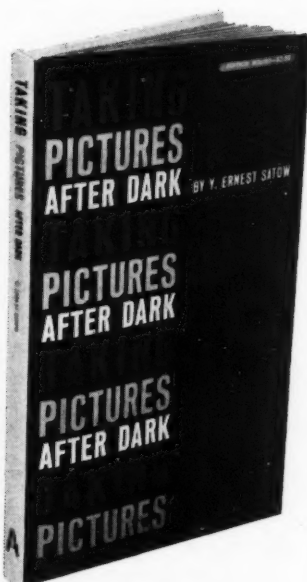
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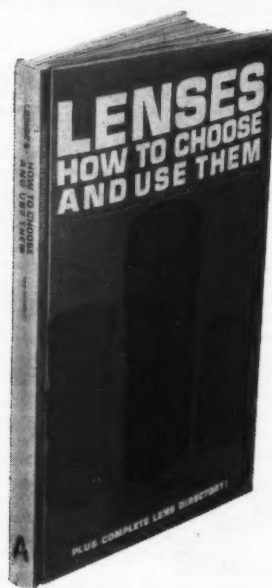
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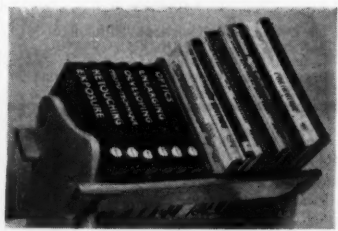
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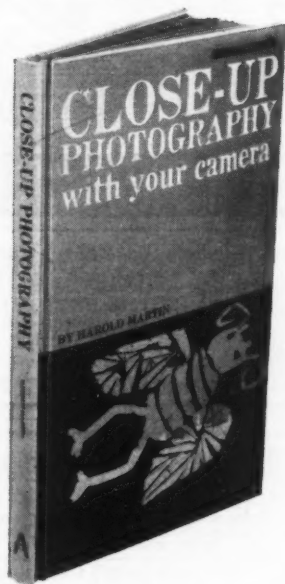
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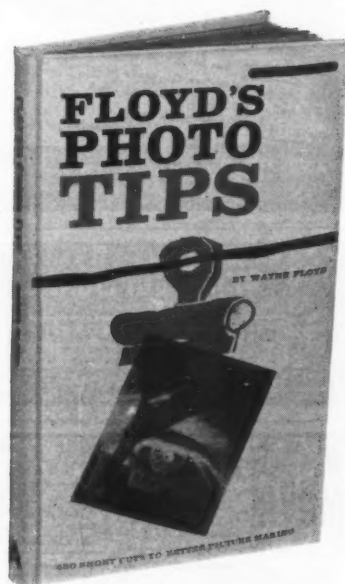
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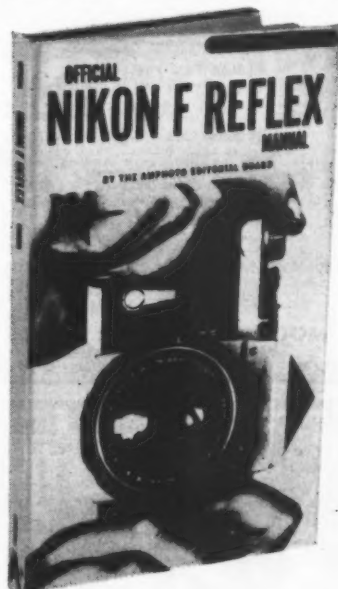


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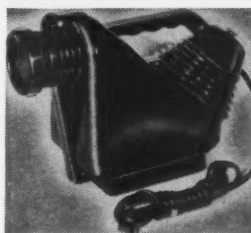
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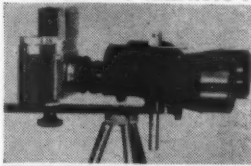
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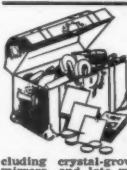
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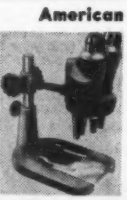
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